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Reflex Plus can show you more about relationships than Dr. Ruth

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Many "database managers" are not much more than "list managers"—simple lists that can't connect and cross connect one item with another. So while they can "list," they can't really "manage."

The inability to relate one event to another means that things could be going right or wrong within your database but unless it's truly relational like Reflex Plus, it can't show you what they are.
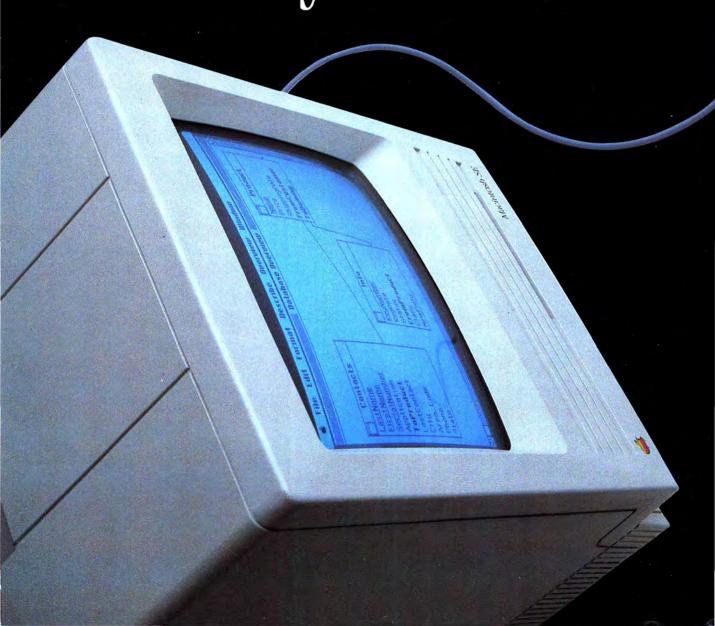
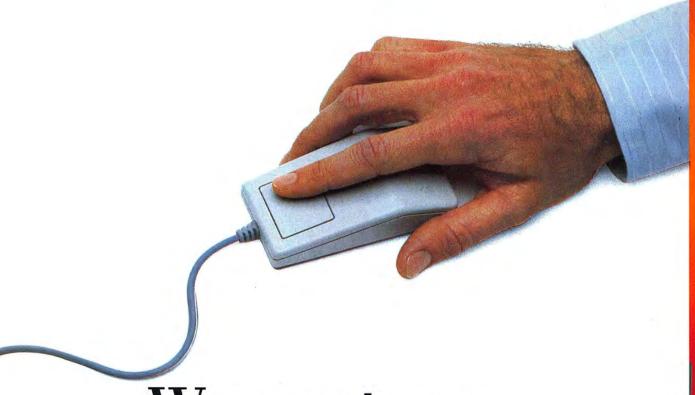## What your data tells you depends on how you look at it

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P L U S

The Macintosh Boundary from **Doug Clapp. John Dvorak** on the state of the Mac. **Neil Shapiro's** Editor at Large. **Robert Wiggins'** Pinstripe Mac. **Steven Bobker's** Editorial Privilege. **Dan Cochran** with Answers from the Mac Team. Three pages of hints and tips. Over 300 **MiniFinders**. An expanded **Quick Click** section, now including hardware.

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by Steven Bobker

Small Is Beautiful

There was once a small software company in Monterey, California called Greene-Johnson. Their main product was *Spellswell*, one of the first and best spelling checkers. The name was a tiny joke, since you could pronounce it spells well or spell swell. Either way it was good enough to win an Eddy in 1986.

During 1987 Mike Greene and Dave Johnson split up, with Dave keeping (and improving) *Spellswell*. Dave also changed the company name to Working Software and released *Lookup* and *Findswell*.

Lookup lets you check a single word as you type, much the way writers really use dictionaries and other spelling aids. And it's simple. And great. *Findswell* adds a file finding function to every file selection list dialog. It's a real time saver for those of us with lots and lots of files buried on our disks. And it, too, is simple. And great.

In fact, all three Working Software products have earned five-mouse ratings from us. Never before have all of a company's products been top-rated like that. There's an attention to design, detail and testing that other software companies could learn from. Even the box art and other packaging is exemplary. Working Software isn't a major player in the software market, but it's one of the best. It's the sort of company that makes the Mac so exciting a computer (and my job so much fun).

Meanwhile, Mike Greene didn't fade off into the golden California sunset. He started Greene, Inc. and his first product, *QuickDEX*, has gained high ratings and wide acceptance as the best name, address and telephone number DA. It can do more than that, being a simple freeform data base in DA form. It's elegant, smooth and has a real future.

And Greene, Inc. has just released a game that is sure to be on everyone's best game list. It's called *Crystal Quest* and is designed to run in glorious full color on a Mac II. In fact, it's easier (and more fun) to play on a Mac II, but runs on any machine with at least 512K of memory. Still, it's really a Mac II game.

It's addicting. As a rule I hate arcade-type games (which *Crystal Quest* is), since I'm too old for that sort of thing and my reflexes aren't what they used to

be (or what I think they used to be). I didn't like *Dark Castle*, I hated *Lode Runner*. I love *Crystal Quest*. Unfortunately the whole *MacUser* staff loves it, too. In fact, if this issue is a bit shorter than the February issue (I don't know yet exactly how big this issue will be), you can blame *Crystal Quest* at least a little. It's now banned most of the time in our offices.

Five winners out of five tries is impressive. But not lucky. Dave and Mike have worked very hard. They start with a love for the Mac. They take full advantage of the interface. They change the interface in ways that are totally intuitive. Consider *Findswell*. It starts by putting a new button in a dialog box. That sure isn't something you saw in early programs. But it's still right. The button says "Findswell™" and gives the command-key equivalent. Click on it and you go directly to the Find What dialog. Couldn't be more foolproof.

What their products don't have are extensive manuals. They don't need them. Just get into one of these programs and do what feels right. It always is. There are no unnecessary complications. There are no hidden tricks. That's what the Mac interface is.
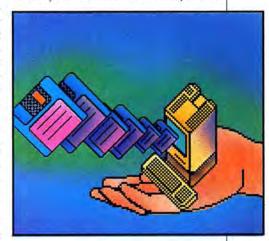
These guys didn't start with a marketing concept; they started by identifying problems. Then they created solutions.

Unfortunately, as the software market gets bigger and bigger, the big players can crowd out the good little players. The little guys can't afford the costs of making their products known. They get lost in the noise. Here's an example. A recent Egghead Software ad featured Electronic Arts' version of *Scrabble* for the Mac. It's awful. Don't buy it. If you have a copy, see if you can return it. It's a sloppy job, a conversion that was meant for some less capable computer. The release copy we got even had a British keyboard mapping (type "m" and get "n", type "n" and get "b", etc.). The program was written in England and not even fixed for the American market. (We told EA about this and after we explained how to fix it, we hear that they did. But early copies will still be defective. If you have such a copy and want to fix it — rather than just toss the game — write me and I'll tell you what to do.)

I've digressed (an editorial disease). The point I started to make is that Egghead, which is a good and reputable software retailer (and who will take returns (hint, hint)), is pushing what it considers to be a major product from a major software publisher. EA sells a lot of software to Egghead. They know each other.

There's nothing illegal or even immoral going on here. Egghead is comfortable with EA. They know EA can deliver whatever quantities of product are needed. The fact that EA's version of *Scrabble* is awful does not seem to have been considered. All that matters is that EA can market it and so can Egghead. I really like Egghead Software and wish they'd take a better look at the programs they want you to buy.

This problem has another dimension. Unless you don't want to sell your product in stores, you need to have it distributed by one or more of the major soft-

> **A**ll three Working Software products have earned five-mouse ratings from us. Never before have all of a company's products been top-rated like that.

ware distributors. Many stores only deal with these one-stop software sources. These companies won't sell just anything either. You just don't go to them and say: "Here's my wonder program. Please get it to the panting masses." They all have standards.

The distributor with the highest standards is Bonsu, a Mac-only company, but the rest (SofSel, MicroD, etc.) are also quite good. And all of them have a price cutoff, a minimum suggested retail for

Because pulling down menus is a real drag.

the products they carry. It's usually around $50 or $60. They need that price to cover their margin and the retailer's margin.

That's a sort of stiff price tag for lots of small companies with small programs. I remember Dave Johnson's anguish last May as we sat around after a Mac show discussing the price of the then soon-to-be-released *Findswell*. It's a small, simple program, it does a lot, but there's not much bulk in the package. Dave wanted to make his product affordable to as many people as possible and he wanted to get it as widely distributed as possible. The reality of economics in the software market led him to price it so the distributors would pick it up. I think he made the right choice, but it wasn't easy.

I 'm told that some advertisers have angrily cancelled ads. So be it. We serve you, not them.

The big companies don't have to worry about things like that. They can often package a cheap program with others that the distributor wants. For example, EA could package its must-buy Mac package, *Disk Tools Plus*, with *Scrabble*. The unintended result could be to lock a good program from a small company out. There are only so many games that can be carried, displayed and sold.

We at *MacUser* have always felt a special obligation to cover all good software, no matter the size of the company that publishes it. It doesn't matter to us whether or not the publisher is big and rich or not. Being an advertiser, or even thinking about being an advertiser, is not required. In fact, I know who has advertised in the current issue of *MacUser* when I get the first copies. Every now and then I get a call that basically says the current ad depends on a good review or an upgrade in the mouse rating or something similar. (I'm sure all magazines hear these "requests.") My answer is always the same, and always simple. "You'll get the review you deserve. If you don't want to advertise here that's your decision and it won't affect any of mine. Goodbye." I'm told (by our advertising people) that some advertisers have angrily cancelled ads. So be it. We serve you, not them.

I'd like to take a few moments of your time to tell you about some other small software companies and their products. You may have to look a bit for these products, but they'll be worth your efforts.

Kent Marsh of Houston, Texas has a neat product called *MacSafe*. It lets you restrict access to selected files on your hard disk. They have a second product, *The NightWatch*, that I haven't seen yet. It's also a hard disk security program. These are programs that solve real problems for many people.

Dubl-Click Software of Northridge, California is the premier publisher of ImageWriter fonts. Their two-volume *World-Class Fonts* set is superb (and a bargain). They also have some neat utilities (the *Big Caps* DA, a vast improvement over *Key Caps*, is theirs).

Software Supply of Sunnyvale, California publishes *Suitcase*, a runner-up for best new Mac product of 1987 (and Eddy winner for best new utility), and *PowerStation*, an elegant *Finder* alternative.

SoftView, of Camarillo, California, is a borderline small company, but they certainly were small not long ago. Their tax programs, *MacInTax* and *Tax Planner*, are first class in all respects.

PCAI, of Champlin, Minnesota, publishes two of the neatest action games I've ever seen: *MacGolf* and *MacRaquetball*. *MSFL Pro League Football* from Micro Sports of Chattanooga, Tennessee, is *the* game for football fans.
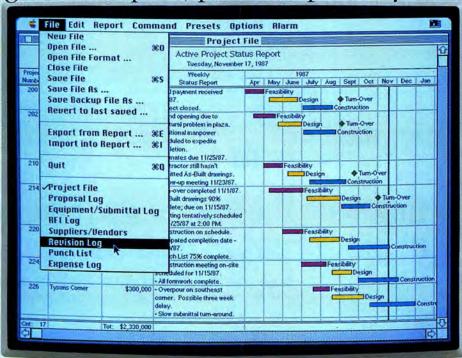
Nashoba Systems, of Foster City, California, wrote the popular *FileMaker Plus* and is now keeping it alive. CE Software, of Des Moines, Iowa, was, if not the first, among the first shareware publishers of Mac software. They now publish both software and commercial products. Their newest (at press time; they'll have another by the time you read this), *QuicKeys*, is virtually a necessity for owners of Extended Keyboards. It won an Eddy in 1987.

If you have files to fix, three programs from small publishers are absolutely required. They are, in no particular order: *MacZap* (great name!) from Micro-Analyst of Austin, Texas (be sure to get version 5.0 or higher); *Fedit Plus* from Mac-Master Systems of Sunnyvale, California; and *1st Aid Kit* from 1st Aid Software of Boston, Massachusetts (get the HFS version — it's better and more useful).

That's only a partial list and I've run out of space. There'll be more next month. Meanwhile, check out the small software publishers; you'll find some great programs and some great bargains.

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Open File Format ...
Close File
Save File ⌘S
Save File As ...
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Revert to last saved ...

Export from Report ... ⌘E
Import into Report ... ⌘I

Quit ⌘Q

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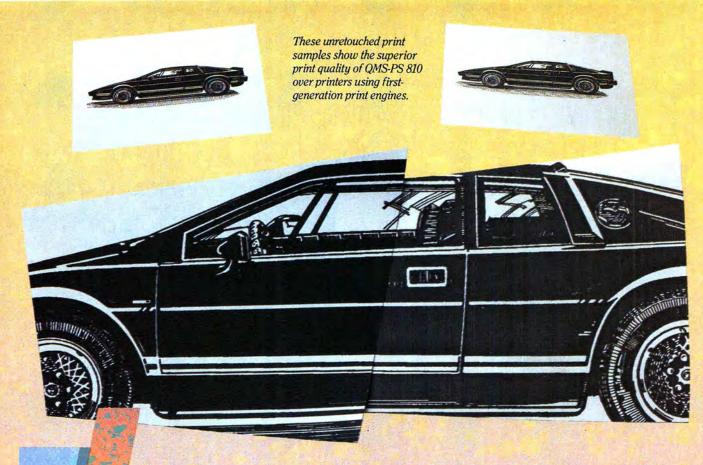
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by Neil L. Shapiro

Big, Bad Apple

Is Apple getting too big?

I've been a Cupertino watcher since 1978, and an Apple stockholder since they went public. I even held onto all of my Apple stock right through Black Monday because I think Apple will be one of the first to regain its former glory.

I've seen Apple go through all of its many past gyrations, confusions and contusions, victories and innovations. I was one of the first to buy an Apple II. Since then I have owned a II+, a IIe, a IIc, a IIGS, a Mac, a Mac 512, a Mac 512E, a Mac Plus and a Mac II. The only IBM "compatible" I own is a Toshiba T-1100+ and that's just because Apple has yet to come out with a laptop (and if I had known when I bought it about the no-goods at Toshiba selling nuclear submarine secrets to Russia I would have bought a Radio Shack instead).

As one of the only people who knew anything at all about computers while working for a major publishing company (not this one) in 1979 and 1980, I was tapped by high management to help them computerize.

I personally installed various Apple IIs, spent hours and hours not only explaining computers, but why they were needed and why Apple was the best. I used to go to bed at night thanking the Lord (and Bricklin and Frankston) for the *VisiCalc* program. And I used to smile when someone making almost a hundred times my own salary would claim they. now knew how to program because they could write a simple spreadsheet while being unable to even get a disk directory on-screen in the regular operating system.

Then, suddenly, for no reason other than sheep-like stupidity Apples were out and IBM was in. It was a big corporation. Like tends to go with like. It wasn't what the PC could do that made it the darling of the corporate eye; it was that the big corporate types were never really comfortable with the image of California hacking that was so much a part of Apple then.

Then came 1984.
The Macintosh.
Power.
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Promise.

I was in a new position within that company, charged with investigating the possibility of getting into such things as software publishing. The first official phone call I made was to Guy Kawasaki.

I wonder if Guy still remembers that call. It was a riot. I had to bum a free copy of *Inside Macintosh* from him.

As I explained, it was a big corporation but I didn't have a budget approved yet. All I had in my office was three desks, two Lisas and one telephone. The only way I could come up with a hundred dollars would have been from my own pocket, which meant it was literally impossible.

Guy, of course, didn't know me from Adam at the time. But I guess my babbling about the Macintosh and the desktop, about how I ran an on-line Apple users group impressed him.

Of course, it impressed him in a Cupertino kind of way. I imagine you could call IBM in Boca Raton and babble forever about how you love their computers and die from starvation before they sent you anything for free.

Anyway, the next week I had the three huge *Inside Macintosh* binders. We were, I thought, on our way.

But, not quite.

No one, not one person in any position of corporate authority, would or could bring themselves to believe that the Macintosh could ever establish itself as an alternative to the IBM PC. My Macintosh development efforts were snuffed. I spent the remainder of my time at the company on other projects.

How many of you reading this have had similar life histories when it comes to computers in large corporations? I would be willing to bet that the majority of you who have been around a long time could tell very similar stories.

But what happened?

The corporate pundits were wrong. They tripped on their own petards, dropped their crystal balls on their toes and even now are scuttling to catch up to where we are today — in the realm of Mac. How did this happen? Was it that Apple's four-color advertising campaigns paid off? No, not really.

The Macintosh "made it" because of a complex interweaving of people, places and events that I have come to refer to as the phenomenon of the Macintosh Community.

YOU, ME, EVERYONE

The Macintosh has had something different happen to it — it has been championed by The People. Macintosh owners at first fell in love with the Macintosh and the whole milieu of things involved with the Macintosh. It instantly became more than a machine. It became a cause.

Suddenly people at various large corporations began to insist, to demand that these corporations pay more attention to their computer needs than learning how to pronounce three Big Blue initials.

The Macintosh Community began in early 1985, composed of users, developers and Apple itself. Communicating with each other in the media, via private correspondence, at in-person shows and over the computer networks, people began to form almost an electronic version of Woodstock. As an old fogey I remember Woodstock and how the love of good music and good "vibes" could turn disparate peoples soaking to death on a New York farm into at least a temporary "nation."

Well, the love of a good computer system and of a good computer company was doing the same thing here. People were getting more than just involved with the Macintosh as a computer, they were getting involved with other Macintosh *people*, other parts of the *community*.

IT'S A SMALL WORLD

Much of this community of feeling stemmed from the fact that Apple was composed of people. Real faces.

When the Macintosh was first launched there must have been hundreds of stories told about the intrepid design team. While Woodstock had "Country Joe and the Fish" we had "Bill Atkinson and Andy Hertzfeld." While at Woodstock they traded stories and mythos, in the Macintosh Community we had our own legendaria (remember the pirate flag on the Mac Building?).

Small developers flocked to the Apple banner, hoping and dreaming that they would become the next Microsoft. Some of them made it. Others just became mildly wildly successful.

BIG BUSINESS

But I see now that a part of the Macintosh Community is beginning to waver a tiny bit in what makes for Community feeling. I'm afraid that Apple may indeed be becoming not too big per se — but too "big-oriented."

I know that as one of the editors of a large magazine devoted to the Macintosh computer I "should" be a cheerleader of Apple's corporate growth. And, ordinarily, I am.

But there have been a few things in the past year that I've seen as threatening to the overall pattern that Apple has established as being the "grass roots" computer system.

First, there is the issue of competition.

The Apple has attracted tons of developers. One of the reasons is that people have always trusted Apple Computer. I

The Macintosh has had something different happen to it — it has been championed by The People. It instantly became more than a machine. It became a cause.

know that many PC developers in the past felt that IBM would do anything to make a buck and so were hesitant about hitching their star to that company.

But Apple has always been a computer manufacturer first and foremost. While no clone maker ever felt very welcome in

Cupertino, no software developer ever felt threatened.

Not until recently anyway. I've talked in the past few months about the Claris spinoff and the bundling of *HyperCard*. My perception is that Apple needs to handle Claris at a further remove than they have thus far done. And, they need to make very clear that the *HyperCard* bundling was an extremely unusual thing.

While some people say "what could be bad about getting something for free?" the situation is that Apple may have too much more money than they know what to do with. If Apple wants to, they could, at any time, put almost any developer right out of business by simply coming out with a similar product and under-pricing it or giving it away for free.

Why would they do this? Answer: To sell computers. The Apple line of computers, from the IIc to the Mac II, have one thing in common. They are pricey. The more free things that come with a computer, the easier it is to justify the cost.

The difference between
WRITE AND WRONG:

But the cost can be long-range as well as short-range. Computers such as the Macintosh are an excellent buy today because of the range of software and peripheral possibilities provided by third-party developers. If these third-party developers perceive Apple as being competitive with them, what could happen? (And we're not talking about normal competition here but the possibility of giving away A to sell B.) They could leave and Apple could find itself in the untenable position of trying to be a jack of all trades for all people.

Another problem Apple faces is depersonalization. I *like* that the original Mac team signed the inside of the Mac case. However, big businesses do not like to

> # A
> **lot of the thrill of owning a Macintosh is knowing about the people behind it. Apple must be certain never to become a faceless entity.**

personalize their products with the names of the behind-the-scenes employees. Who, for example, designed your toaster? Still, a lot of the thrill of owning a Macintosh is knowing about the people behind it. Apple must be certain never to become a faceless entity.

Yet another problem that Apple must "face" in the next year is dealing with their success in getting into businesses. Already I have seen reports from the Reuters news agency that the majority of Apple's customers are now large businesses. This is good. But it can also be a problem.

With success can come a certain degree of conservatism. Less chances are taken, less waters riled up. I wonder if Apple, today, would take a risk like they did in 1984? On this issue, I think they would. I think that Apple has so many things planned for us that conservatism is one charge they'll not have to face. I hope I'm right.

1988 can be a Community Experience, too. Just as long as Apple Computer never gives in to the impulses that would make of them a "Big Red." ▨

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DRIVING MACHINES

A PAGE FROM OUR BOOK

The first issue of *MacUser* I received was December '85; it ran a svelte 152 pages. The page count inched up during 1986, and for most of 1987 it hovered between 180 and 200. The December '87 issue tipped the scales at a whopping 284 pages. I thought to myself, "Jeez, this is getting as big as the Brand X Mac magazine." You must be drowning in success, but I'm afraid of getting a hernia.

All is not rosy, however; the quality of your binding is suffering. When I opened the last few issues, the first several pages just came right out. This may or may not relate to the foldout covers you began using in the October issue (perhaps your theory is that if centerfolds attract readers of one sex, coverfolds will draw both sexes). I'm sorry, but this reader is more attracted by informative articles and bindings that don't fall apart.

Double or single, your November cover was a knockout of printing. How did you achieve the 3D effect between the lines in blue and those in white? Please tell me it was not accidental.

PAUL O. JOHNSON
DALLAS, TX

We'll stick with coverfolds as long as the Meese Commission lets us (and advertisers want them); we're working on the bindings. Art Director Lisa Orsini says the blue lines and the red background happen to be the same hues as the blue and red in 3D glasses. Your eyes inadvertently create the illusion of depth. — JZ

LOOK OUT BELOW

In various articles and advertisements in your magazine, mention is made about raising the Mac "higher" so it is at eye level and easier to see. Nothing could be further from the truth, especially if you wear bifocals.

On the contrary, bury the Mac, at an angle, in your desk or table and you will be able to see the keyboard and screen without moving your head, and a glance to the side lets you see the documents you are working with — and all those headaches and shoulder pains will disappear. Everyone who has seen my Mac, barely protruding from the table, agrees it's the only way to fly! Is there a furniture manufacturer out there somewhere who needs an idea?

JAMES T. HUMBERD
RANCHO MIRAGE, CA

It works both ways. I have two Macs at home. One sits on a rather high desk and is further raised by two PCPC MacBottom hard disks. The screen is just about at eye level as I sit. I find that very comfortable. The other one sits on a ScanCoFurn MacTable, much lower and tilted back. That also works well. Personally, I like the higher position, but I can see your point. What I like more than the height of the screen is the small amount of desk space actually used. I like being able to use the same desk to compute and do other things. — SB

SEEING RED

The emperor has no clothes!

I read your review of *Red Ryder 10.0* in the December '87 issue of *MacUser,* and I'm appalled at the gee whiz tone of the review. Certainly it is the best Mac communications program, but

that's a very small universe. On an absolute scale of quality, there is no way it deserves 5 mice. It's full of bugs, such as file transfer protocols that don't work as expected, or give up part way through a transfer, and don't record the number of transmission errors, don't properly indicate whether CRC or checksum is being used, the pathnames for default folders aren't remembered between launch, etc.

In truth *Red Ryder 10.0* is another *Microsoft Word 3.0.* This is even further born out by the appearance of 10.1, 10.2, and 10.3 in rapid succession on GEnie.

Compared to MS-DOS telecommunications programs, *Red*'s collection of file transfer protocols is extremely limited, especially in the area of support for protocols that are efficient over packet switched nets (like WXmodem, Zmodem and SuperKermit).

The time has come for somebody to write a high quality terminal program for the Macintosh. A program with features that we need, like efficient, bug-free file transfer protocols rather than junk like animated phone books, macro button scrolling and icons that stick out their tongues. Who will take up the challenge?

ERIC LARSON
MARCELLUS, NY

Point taken, but that "very small universe" is, after all, the context in which Red Ryder *is judged for the mouse rating. I wholeheartedly support your call for a bug-free telecommunications program. — LK*

INITIAL PROBLEMS

There is a serious problem with the *System.* In the past three months I have met four people who have accidentally erased the contents of their disks. When a double-sided disk is placed in a single-sided drive, the user is met with a dialog box which asks if he or she wants to initialize their disk.

To the beginner, the word "initialize" gives no hint that their data will be erased. I urge Apple to include a warning which states: "Warning: this action will erase all data on the disk." The problem is very serious. And the solution would be trivially simple to implement.

ROBERT STURIM
NEW YORK, NY

HYPEBUSTERS

After reviewing the last few issues of *MacUser,* I compiled the following figures regarding the number of inches devoted to discussion of *HyperCard:*

October: 1.7
November: 100.2
December: 646.6

Well, this program seemed important. I went out and bought *HyperCard.* I was so impressed that I also invested two-thirds the price of the program in Danny Goodman's book. After fiddling with *HyperCard* a little bit, I was sore impressed.

I started writing scripts (easy thing to pick up, these scripts). It was then I discovered that the scripts were interpreted, not compiled. I should have suspected this fact from the ease of operation of *HyperCard.*

I thought that I might be able to write external procedures to speed up the process. However, Goodman's much-touted book devoted only one half page to this subject, totally ignoring how to access card numbers, button numbers and field numbers from external resources.

So I have concluded that while *Hyper-*

Card has immense possibilities, it is a bit like the BASIC interpreters: the programs that use them are useful only if they are simple. *HyperCard*'s full potential will not be realized until script compilation is available.

THOMAS J. KLEESPIES
WESTFORD, MA

You might be interested in looking over another HyperCard *book,* HyperCard Scripting: A HyperTalk Language Guide and Tutorial, *by Jeff Stoddard. You can get it from Walking Shadow Press, PO Box 2092, Saratoga, CA 95071. Their phone number is (408) 354-7833.* — LK

IT'S TWO, TWO, TWO ???S IN ONE

Well, I've finally got to join the fray over *HyperCard*. Why, this is the greatest debate since the one about Certs! (You remember — breath mint or candy?) It was Bobker's column in the December '87 issue that pushed me over the line. He ties some themes together around *HyperCard* that I've been thinking about for a while.

The first one is the lament for the late, great "computer for the rest of us." Bobker's afraid that *HyperCard* will unleash forces that will sweep away the last remnants of The Interface. And whither goeth The Interface, so goeth the Mac. I've been hearing this in one form or another for a while now, even before *HyperCard* appeared on the scene. I even hear complaints that now Macs have slots!

What I think these people are really bemoaning is the fact that the machine is growing up. The Interface has inspired the entire computer field. It's vindicated the visionaries at PARC who believed that this is the way people want to interact with their machines. Now the "other" world is jumping on the bandwagon and, as they do, The Interface is taking its deserved place in the computer mainstream. As it does so, it influences and is influenced by its surroundings. That's change, folks, and it's inevitable.

I'm a relative beginner with the Mac. Maybe I'm a generation removed from the "purity" of The Interface. I don't know, but I still see (and enjoy) The Interface in the newest and most "complex" programs. Even in *Word* 3.01. Even in *HyperCard*.

If *HyperCard* threatens the sanctity of The Interface, then I say: "The king is dead! Long live the king!" For what we get in return is the ability for "the rest of us" to unlock the magic of this machine. I think it's a fair trade.

That said, I agree that we don't want stackware wandering *too* far afield. But

how far's too far? Certainly we don't want MS-DOS emulations written in *HyperTalk!*

The other theme I want to touch on is the "What is *HyperCard?*" question. It's *not* system software, although sometimes it looks like it. Maybe it's an environment, the way a BASIC or LISP system is an environment.

Then again, maybe it's a breath mint!

STEVE LELCHUK
MINNEAPOLIS, MN

Did you forget the Less Filling/Tastes Great debate (which, chronologically, falls between the Certs and HyperCard debates)? And, while we don't think it's a breath mint, persistent rumors that it is a dessert topping keep surfacing. — JZ

MORE FAN MAIL

The fatal flaw of the SE fan noise can be solved by opening it up and cutting the yellow wire to the fan. Then drill a hundred small holes into the upper left top of the case just above the power supply, *à la* the Plus. The fan stays power off and the Mac stays convection cool. For added coolness, pop the accessory panel in the back and use an external hard disk. Apple usually gets things right the second time and this is their first fan.

JOHN BARRY SMITH
SAN FRANCISCO, CA
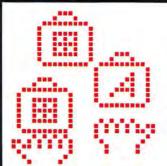
MacUser has neither tested nor endorsed this procedure, which also voids your warranty. — JZ

LICENSED TO SELL

I may be the victim of well-intended, but bad advice. I have a need to maintain a simple receipts/disbursements bookkeeping system for a small trust, a small partnership and a small club. It was suggested that I use *Dollars & Sense,* which I did buy in January, 1987. I reviewed the manual and sample disk, and I don't believe it is well suited for my needs.

My questions are: 1) Is it normally possible to return, or alternatively, possibly legal to sell a registered software package? 2) What moderately priced accounting software could you suggest?

THOMAS G. MOSHER
SPOKANE, WA

Many software packages are sealed with a label with words to the effect that by breaking the seal, you agree to play by the publisher's rules. The full licensing agreement spells out your rights (although not necessarily in anything resembling English). Often there's a provision stating

that the software cannot be sold without the express written consent of the publisher. According to Monogram (publisher of Dollars & Sense), they can't provide technical support or updates to the new owner until they receive a signed letter from the seller with the details of the sale. Check the Personal Finance and Business Accounting sections of the "MiniFinders" for other software options. — JZ

SHAREWARE SOLICITATION

I would like to challenge all freeware and shareware developers to develop some educational programs that could be used to teach basic living skills to low-level readers and the mildly to severely retarded. These would be simple programs, but would contain rewards for right answers, in the form of bells, music, on-screen graphic displays, etc. It is next to impossible to purchase this type of program due to low demand, but there is a definite need for such programs. We have used *MacEdge II* to some extent with good results. We are looking for variety in shopping, dressing, and other basic life skills instruction in simple game form.

Anyone interested may write to me at Computers Helping Handicapped Cope, 62 Oak Street, East Falmouth, MA 02536.
JOHN R. JENKS
EAST FALMOUTH, MA

THE POWER OF BABBLE

Why don't computer magazines take into account the vast majority of computer users who aren't pinball wizards "up" on all the latest computer jargon?

I keep seeing *Excel* described as "the most powerful spreadsheet," which is probably why I return, time and again, to the manual to try to learn it. Right now, I don't need pro techniques or undocumented features. I need to learn the basic program. And not all of that. Just the part that lets me figure batting averages or points-per-game. Am I asking too much? Or am I asking too little?

What the hell is HFS and should I be using it? Screen dump? Sounds messy. Thank goodness my screen has never dumped on me. I guess my basic, or is it *ZBasic*, gripe is the assumption that everyone knows what everyone else is talking about when they speak computer. I don't speak computer. Does anyone speak English?
BOB WOODBURY
WATERVILLE, ME

We sympathize. One option: Grit your teeth and jump into the "techie" stuff (like

Dan Cochran's monthly column, "The Help Folder," which discussed screen dumps in February '87). Look up "A Hard Mac Is Good To Find" in the February '86 issue for an explanation of HFS in crystal-clear English. And you can pick up a lot by osmosis. — JZ

WHAT ADB HATH PUT ASUNDER

Ever since the ADB keyboards were introduced with the new Macs, I have longed to be able to connect a new keyboard to my 512E. Countless salesmen and technicians have told me it can't be done. (I don't believe them.) My hope is that either Apple or an enthusiastic hardware manufacturer will produce a reasonably priced keyboard that looks and feels exactly like one of the ADB keyboards, for the 512 and Plus. It can't be impossible. HELP!

Also, has anyone else noticed that annoying ticking noise that the new 800K drives make? I don't know what it is, but I do know how to stop it. There is a microswitch at the front, right-hand side of the drive. Stick your finger in and press lightly. You will feel a click, the drive will spin, and the noise will stop until the next time you power up.

DAVID BRUCKMANN
BURLINGTON, ONTARIO

THEIR PRICES ARE INSANE

The horror stories about Apple dealers are nothing new, but last summer I had the unfortunate experience of visiting the sole Apple dealer in Karachi, Pakistan and that experience has compelled me to write this letter.

Business Computing International is the sole distributor of Apple products in Pakistan. I needed some software and wanted to have my *System* upgraded. To my surprise they were charging astonishingly low prices for the software. In fact they had a set price per disk regardless of the software. Needless to say I jumped right in and asked for *Omnis* and *Al-Katib*. They charged me Rs. 600 for the four disks. For you Wall Street buffs out there, it comes out to be little more than $33.

Yes, they are selling pirate copies. To top this all off, they are also charging the same amount for the Apple *System*. And Apple dealers in Karachi blatantly encourage students in America to buy Macs for them at special discount prices.

It is with great regret that I say that if this is the kind of support Apple expects to give to its customers and developers, then my next choice for computers will be anything but Apple.

SYED M. JAFFERY
WOOSTER, OH

SPARE THE MOUSE, SPOIL THE CHIDE

Got December '87 *MacUser* today. I like the fact *MacUser* stresses the creative side and the issue is one of the best that way. But I thought copy protection cost vendors a mouse. So without copy protection, *Master Tracks Pro* would be a 5+ mouser? (Paul Lehrman charges off a ½ mouse in the piece.) I have *MTP* myself and it's a great program. Yet there's no explanation of why a copy protected application didn't get hit with the penalty. A lapse from *MacUser's* typically high standards, maybe just an oversight?

CRAIG O'DONNELL
EVANSTON, IL

Yes, pure editorial oversight. We should have demoused it for the copy protection. And we have already changed the Mini-Finder to reflect the lowered status. See our February issue. —SB

FORGING AHEAD WITH SIGNATURES

I disagree with Greg Raven's letter in your December '87 issue stating that the fact that desktop publishing programs do not take signatures into account is no big deal since "we left it up to the printer to determine signatures."

I have been involved with a variety of publications and they have always been concerned with where the color will fall for a variety of reasons, the foremost being economics. For example, on a web press, the cost of the four-color process could be (depending on the size of the print run and for the sake of argument) $1000 per plate. With eight pages per plate, there is a potential to get eight four-color pages for $1000. If the color placement is haphazard, those eight four-color plates could end up on eight different plates. At $1000 per plate, that's $8000. A little extra planning could mean a potential $7000 savings.

Another potential problem is that heavily unbalanced color pages run head to head on a signature will leave a light color imbalance on the following page. For example, a four-color page saturated in cyan on the right side of the page will sap cyan from the left side of the head lap facing page and leave a light cyan imprint. Many high-speed web presses simply can't refresh from a heavily unbalanced page quickly. This can be avoided if proper color placement is known through careful signature evaluation.

Figuring signatures is a rather simple procedure and could easily be incorporated into any page layout program.

MARC DODSON
MISSION VIEJO, CA

DUE AS I SAY, NOT AS I DO

I am a college student who has just bought a Mac, and with it the October issue of *MacUser*. I found your articles to be lively and entertaining, much like my new SE. However, I would like to say that when you are trying to be cute, get it right. Page 10 sports the "Fine Print Weasel." You spelled due, "do," a mistake many magazines should be above, since it is not really typographical. Perhaps more time should be spent proofreading the issue than writing cute notices.

DAN HARRISON
ITHACA, NY

Our motto: Do is to others what due is to you. In the immortal words of Gertrude Stein, "A rose is a rows is arose." Or, as Ol' Blue Eyes put it: "Do be due be do." Don't you people have anything better to due? — JZ

FOR THE SOFTWARE THAT'S HERE. AND THE SOFTWARE THAT'S COMING.

PageMaker, Microsoft Excel, Illustrator, MultiFinder, and 4th Dimension. The second generation of Macintosh software is here now. The third generation is already beginning to arrive.

Your Macintosh SE alone can't keep pace with the ever increasing sophistication of Macintosh software.

But it can with a productivity system from Radius.

Totally compatible with your Macintosh SE, from its aesthetics to its electronics, there's a Radius System designed for your particular working style.

Our Document Processing System consists of a 640 x 864 pixel Radius Full Page Display™ that lets you work on a virtually paper-like 8½" x 11" page.

Then we add our Radius Accelerator 16™ and quadruple the speed of all of your Macintosh applications from Ready, Set, Go! to HyperCard.

Our Professional Publishing System features a 1152 x 864 pixel Radius Two Page Display™. Now you're working right across a double page spread or a full-scale B size drawing.

Then we add our Radius Accelerator 25™ and you're working at six times the speed of a Macintosh SE.

Which means our Accelerator 25 has you roaring along faster than a Macintosh II.

For Engineering and Design and intensive number crunching, we add something even a bit more powerful: the MC68881 mathematical coprocessor.

It aces floating point computations at one hundred times the speed of your Macintosh SE. Combined with the immense canvas of the Two Page Display and the speed of the Accelerator 25, it takes you to the very limits of programs like Excel and MacDraft.

Both Radius Accelerators offer our innovative MagicBus™ which allows you to configure your Macintosh with either our Full Page Display or Two Page Display. So, you can complete your Radius System all at once or add the components one at a time.

To see the most powerful and sophisticated Macintosh software run at its full potential on a Macintosh SE, try a hands-on demonstration of the Radius System that fits your personal working environment.

Call 1-408-434-1010 for a brochure and the name of the authorized Radius dealer nearest you.

And get the most out of your Macintosh SE and its software. Today. And tomorrow.

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Printers, Inc.

One of the more welcome debuts at the Macworld Expo in San Francisco was Apple's announcement of their new laser printers, a trio of machines varying in power and price. The IINTX, IINT and IISC (in descending order) should be welcomed by everyone from serious desktop publishers and other high-end users to those of us who just want a personal Laser-Writer that doesn't cost half a year's rent. The two higher-end machines especially will be good news for PostScript aficionados.

The three share some sterling virtues compared to current La-serWriters: they're lighter, the paper trays are twice as large and the new toner cartridges are promised to last at least 4000 pages rather than 3000. All three also have a SCSI interface for hooking up a hard disk to the printers for font storage.

The IISC is what Apple is calling their entry-level printer. It's a one-user machine (no networking) with 1 megabyte of RAM. In addition to the SCSI interface, through which you can daisy-chain up to six hard disks, there's an ADB port. It has no resident page description language, so it can take whatever your software is dealing out (except PostScript). Helvetica, Courier, Symbol and Times typefaces in six sizes are bundled with the unit. As of press time, the suggested list price is under $3000.

Next on the way up to printer heaven is the LaserWriter IINT, with a 68000 microprocessor, 1 megabyte of ROM and 2 megabytes of RAM, built-in AppleTalk for up to 31 users and 35 standard typefaces (the LaserWriter Plus set). The NT is a Postscript printer with Diablo 630 emulation and an RS-232 port, making it accessible to the MS-DOS world. It also has the ADB port, with its potential for expansion. List price for this one is under $5000.

Sounds good, right? You might be wondering what Apple did for an encore. They did the IINTX. The IINTX runs on a 68020 microprocessor with 2 megabytes of RAM, 1 megabyte of ROM. And if that's not enough, you'll be able to increase up to 12 megabytes of RAM, 2 megabytes of ROM. Apple-Talk is built in (for up to 31 users; more with bridging). The IINTX is a PostScript machine, which works as well for MS-DOS machines as for the Mac — it has an RS-232 port and both Diablo 630 and LaserJet Plus emulation. The bundled fonts are the same as those of the LaserWriter Plus, but there's an expansion slot for a custom ROM card if you need to increase the number of resident fonts. The bottom line with all this is speed; it leaves the LaserWriter Plus in the dust, so to speak. List price as of press time is approximately $6500.

The good news about this series is that you'll be able to upgrade from one level to another through board swaps. The bad news: So far there's been no word on any trade-in policy for owners of older LaserWriters. — *LK*

Mixed Media

"Kyeptin! I've newwer seen anything like it. It looks like...like a giant...like a giant *Excel* spreadsheet, Kyeptin."

"Full speed ahead, Mr. Chekhov. Warp factor nine. What do you make of it, Bones?"

"I'm a doctor, not a hacker."

"Fascinating."

Imagine the possibilities open to you with TV Producer, a Mac II card that lets you mix broadcast-quality video with Mac II output. You can add graphics, text, animation or other images from any application program to any video signal. TV Producer works with standard and professional video equipment, including color cameras, camcorders, video tape recorders and large screen projectors.

By selecting which color (or range of colors) on the Mac II display will be transparent to the external video signal, you can create precisely controlled superimposition effects. TV Producer supports local and genlock operation. The composite signal is fully synchronized and editable. NTSC, PAL, RGB and professional broadcast versions of the card are available, with prices ranging from $599 to $799. For more information, contact Computer Friends at 14250 NW Science Park Dr., Portland, OR 97229; (503) 626-2291 — *JZ*.

No Money Down

"Easy credit terms available." That's the catch line of nearly every discount mortgage house around. You've seen their commercials a hundred times on late night TV. Now there's a spreadsheet application that lays out just how easy that credit really is. *Loan Qualifier,* from Financial Microware, not only calculates what the monthly payments will be on a home mortgage, it also tells you whether you can afford it.

Loan Qualifier is a spreadsheet template and you'll need *Excel, Crunch or Multiplan* in order to run the program. Then it is just a matter of typing in the value of the house, the amount of the loan, the interest and how many years it's going to take to pay it off. *Loan Qualifier* breaks down the overall cost of the loan including taxes, closing costs, escrow fees, pest inspection reports and all the other hidden costs that come about when buying a house. It then tells you the monthly payments and what your minimum monthly income should be in order to get the mortgage.

Loan Qualifier isn't so much aimed at individuals as it is at small real estate companies and it can be customized to reflect local laws and customs. It costs $99 and is available from Financial Microware, PO Box 40, Cupertino, CA 95015; (408) 733-6705. — *BT*

Mandel-brot Squared
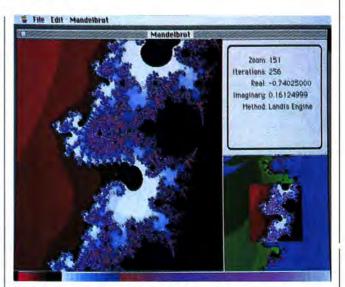
The Mac II's color capability has spawned two products that calculate Mandelbrot sets, a mathematical calculation that results in colorful kaleidoscopic graphics. *MandelColor*, shareware from Sir-Tech, and Mega-Brot, an add-in board from Mega-Graphics, both calculate complex numbers repetitively to produce the often psychedelic images.

Images rendered from a Mandelbrot set calculation usually end up looking like sea creatures or tie-dyed T-shirts from the 60's. When animated in *MandelColor*, the graphic pulsates with an ethereal throbbing of hues that should probably be prohibited to anyone under the age of 18.

While *MandelColor* may take several hours to produce the desired effect, the MegaBrot takes that time down to between 7 and 20 seconds. Using software that comes with the board, you can zoom in on a Mandelbrot set to enlarge it up to 8 million times.

MandelColor was programmed by Robert Woodhead, who asks that a $10 fee be given to the Vision Fund, a charity that provides computers to visually handicapped students. The Mega-Brot board is a little more pricey at $2995.

MandelColor can be downloaded off of CompuServe and the shareware fee should be sent to:

The Vision Fund, c/o Sir-Tech, Charlestown Ogdensburg Mall, Ogdensburg, NY 13669. MegaGra-phics can be contacted at 20954 Osborner St., Canoga Park, CA 91304; (818) 407-0571. — *BT*

RUMOR MANAGER

A Silicon Valley company best known for its innovative and award winning utility software (not to mention the flamboyant personality of its CEO) is about to introduce a radically different sort of hard disk. Its YMM series should have a real impact on the way hard disks and their software are designed.

Planning anything lately? Lots of software companies think so. Not only has Claris recently upgraded and greatly improved *MacProject*, but three other companies are about to jump into the Mac planning software market. Look for one low-end product and two super high-end products (one of which is tentatively priced at well over $1000).

Word processors keep springing up left and write (sorry). Last month there were maybe 10 announced or available. Now there are at least 15. Several large software companies, who have hitherto stayed out of the Mac market, now seem eager to jump in. And since *Excel* so domi-nates spreadsheets and the page layout wars are so intense and crowded with quality products, only word processing is left as a major hunting ground where they can make a quick and big dent. Of course they're all betting on *FullWrite Professional* not doing an *Excel*. We think that just might be a bad bet.

Mac sales are booming, and lots of publishers are going to join those already in the market. Look for several new introductions of glossy Mac magazines by June (and we don't mean the *Mac Business Journal*). Also look for one existing publication to give up the ghost. Finally, two others are seriously talking merger (it's planned for late in the year).

Monitor manufacturers and distributors expect the current sales ratios, which heavily favor black and white monitors over color monitors to increase even further in favor of black and white in 1988. But they expect to sell more color monitors than black and white monitors in 1989.

Some new advances in optical drives are about to change the way you store and use most of your data. Samples of small (about the size of an external 800K disk drive) units have been seen around recently. The one we saw had nonremovable media, but we're told that versions with removable media should also be available soon. The technology advance hinges on a new, radically different head control mechanism. It's claimed to greatly speed up data transfer rates, as well as reduce access times to nearly zero. Look for them towards the end of this year at rather high prices (well into 5 figures).

The latest trend in software design is a back-to-basics movement. It's both a reaction to the overloading of features seen in many programs last year and the perception among many developers that the fast road to high profits lies in finding, researching the needs of and filling some particular market niches. Expect several small companies to join Mi-crosoft (whose *Microsoft Write* was one the first of these products) in fields as diverse as graphics, accounting and, yes, desktop presentations.

Look for several frame grabbers (they take "snapshots" from your TV or from a video tape and convert it to a form that can be massaged in a Mac) soon. The first will come from San Jose. Look for big prices since they're fairly complicated to do for the Mac and the demand is high.

Have you heard any good rumors recently? Can you share them? Does your legal department agree? Will you share them anyway? If we use your rumor we'll send you a token of our appreciation and promise not to use your name. Anonymous contributions also accepted. Contact the Rumor Manager by snail mail care of *MacUser*, Suite 250, 110 Marsh Drive, Foster City, CA 94404, or, better yet, electronically. Right now we can be reached on MCI Mail (MacUser), Compu-Serve (72257,2671) and AppleLink (X0259).

Holy Clip Art!

A new collection of *MacPaint*-compatible clip art called *Christian Images* could prove to be a blessing to anyone producing church newsletters or other religious publications. The 400K disk includes over 600 religious themes (many of which are nonsectarian). The subject matter covers holidays, Bible stories, church services and events and a host of religious symbols. The $59.95 disk is available from T/Maker, 1973 Landings Drive, Mountain View, CA 94043; (415) 962-0195. — *JZ*

MISS NG PIEC S

This month's chart from Robert ART Morgan's *Miss ng Piec s* newsletter looks at spreadsheet programs. From time to time, we'll be printing updates to previous charts too. If you'd like to subscribe to the newsletter, the price is $25 annually. Write to Ramifications Unlimited, PO Box 619, Dept. MU, Julian, CA 92036.

Let us know what charts you'd like to see in the future and we'll pass your responses on to Robert. *MacUser*'s new address is 110 Marsh Dr., Suite 250, Foster City, CA 94404. —*LK*

Spreadsheet UPDATE — What's Missing?

? = feature partially exists or awkwardly implemented.

✓ = missing feature.

	MS Multiplan 1.11	MS Excel 1.04	Bravo MacCalc 1.2b	MS Works 1.1	Lotus Jazz 1a	Data Tailor Trapeze 2.0a
Open Multiple Worksheets	✓		✓		✓	
Split Screen Vertically	✓				✓	
Split Screen Horizontally					✓	
Link Multiple Worksheets	✓		✓	✓	✓	
Row/Column References						✓
Name Individual Cells						
Name Block of Cells						
Mix Data in Block						✓
Select Non-Adjacent Cells	✓		?	✓	✓	?
Vary Font in Each Cell	✓	✓		✓	✓	?¹
Vary Font Size in Each Cell	✓	✓		✓	✓	?¹
Vary Font Style in Each Cell	✓	✓		✓	✓	?¹
Bold/Underline Each Cell	✓				✓	?¹
Borders Around Each Cell	✓			✓	✓	?¹
Vary Row Height	✓	✓		✓	✓	?¹
Total Built-In Functions	49	85	50	54	90	144
Paste Functions In Cells					✓	✓
Annotation	✓	✓		✓	✓	
Graphs	✓		✓		?	
Graphs in Same Worksheet	✓	✓	✓	✓	✓	
Point Select Graph Data	✓		✓	✓		✓
Import/Display PICT Graphics	✓	✓	✓	✓	✓	
Find Text					✓	✓
Find Set	✓		✓	✓		
Name & Save Queries	✓		✓	✓		✓
Sort Keys	1	3	3	3	3	3
Table Lookup	✓		✓			
Password Protect Files	✓	✓		✓	✓	
Password Protect Cells	✓			✓	✓	
Operate on Arrays	✓		✓	✓	✓	✓
68881 Math Coproc. Support	✓		✓	✓		
Macros	✓		✓	✓	✓	✓
Read Text Files			✓			
Read SYLK Files						✓
Read WKS Files Directly	✓			✓		
Write Text Files	✓		✓			
Write SYLK Files					✓	✓
Write WKS Files Directly	✓			✓		

¹ *Can only vary from block to block, not from cell to cell.*

"Band-Aids" for Spreadsheets

1. *Notes* DA from Layered will enable you to annotate *Excel*, *Works*, and *Jazz*.

2. *MockChart* DA can add graphing to *MacCalc* and *Ragtime*. If you are using *MultiFinder*, then *Cricket Graph* or *MS Chart* would be helpful. If not, you could do the same thing with *Switcher* or *Servant*.

3. How do you hide data? Though some let you lock or password data, none have a "hide" feature. But you can create that by setting the column width to zero and then passwording that cell(s). Another way is to set the font to something larger than the row height (in the case of *MacCalc*).

4. *Tempo* will give macros to those spreadsheets that don't have macros.

5. Passwording of files can be accomplished by using *MacSafe*.

Did You Notice?

Has the trip in from the mailbox with the latest *MacUser* been weighing you down recently? We've grown a lot in the last few months (and I'd like to thank each and every one of you for that). As a result, we'll be adding several new staff members in the next few months. We'll be looking for associate editors to edit manuscripts, work with freelancers, and write both feature articles and shorter pieces. We're also looking for an assistant technical editor, a person with lots of hardware and software knowledge. In short, we're looking for *MacUser* editors, people who really love their Macs and can do everything on a magazine. Obviously magazine experience is helpful, but we'll consider anyone. Good English and writing skills are a definite requirement (well, you knew there had to be a catch). These jobs pay a very competitive salary and, if necessary, we'll relocate you to California.

If you'd like to apply to become one of our happy band, send your resume and clips of published work (if any) to M. Jobs, c/o *MacUser*, Suite 250, 110 Marsh Drive, Foster City, CA 94404. No calls; if you call, you don't get the job.

It's All in the Cards

SuperMac's new line of video cards lets users take their pick from a wide array of Mac II-compatible monitors. The three video controller boards announced at Macworld in San Francisco include Revision B of the Spectrum video card (a 1987 Eddy award winner), ColorCard (a low-end board that only drives Apple monitors) and Spectrum/24 (a 24-bit card that can display 1024 X 768 pixels). All the SuperMac boards now support a minimum of 8 bits of color so they can display at 256 colors.

The Spectrum board should be used with the SuperMac, Apple and other analog RGB monitors (such as the Sonys), as well as with the PGA monitors that dominate the IBM world. Each of the boards (except for the ColorCard) can also produce a true NTSC signal, so you can record what's happening on the screen with any VCR. To do that you'll need an external adapter manufactured by Julian Systems. And what previously cost upwards of $5000 is now down to $599 with the Julian adapter.

The Spectrum/24 card is a 24-bit controller board that can display 1024 X 768 pixels. Since most software doesn't take advantage of the 24-bit color mode, SuperMac also announced plans to release a tool kit that allows developers to modify their software. The Spectrum/24 is expected to sell for under $3000.

If you get your board before the end of April, you get a free copy of SuperMac's color paint program, *PixelPaint*, which normally sells for $495. The ColorCard sells for $750.
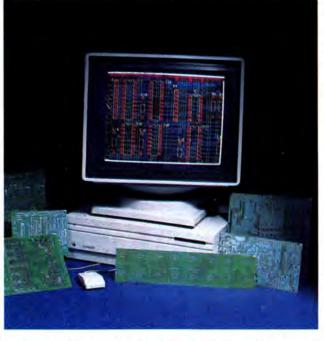
Upgrading to Rev. B of the Spectrum board costs $99. For further information, contact SuperMac, 294 North Bernardo Avenue, Mountain View, CA 94043, (415) 964-9694 and Julian Systems, 140 Mason Circle, Suite H, Concord, CA 94520, (415) 686-4400. — *BT*

Heard on the Circuit

When LucasFilm needed circuit boards for its post-production studio, the engineers used Douglas Electronics' CAD/CAM software to create and test the boards. The customized designs for the state-of-the-art animation studio were then modemed to Douglas for manufacture in just 3 days.

The *Douglas Professional CAD/CAM System* integrates *Layout, Schematic Capture* and *Autorouting* modules to design both analog and digital printed circuit boards. The *Layout* program allows boards up to 32 inches by 32 inches with an unlimited number of layers. A large library of TTL, CMOS and discrete parts symbols can be accessed using the *Schematic Capture* software.

Once you design the board you can test its logic to simulate how well the circuits operate. The *Autorouting* function helps you find any rat's nest of lines and lost connections — a useful task when designing complex boards. The software takes advantage of the Mac II's color, but still runs on older Macs down to the 512KE.

The *Professional Layout* system costs $1500, and the *Schematic Capture and Autorouter* are $700 each. A demo disk is available for $25. Douglas Electronics can be reached at 718 Marina Blvd., San Leandro, CA 94577; (415) 483-8770. — *BT*

Window Cleaning
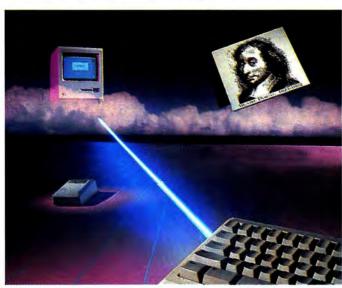
For all those eagerly awaiting the answers to last month's puzzle "Do You Do Windows?" here's how everything matched up.

Screen	Application
A	FullPaint
B	Excel
C	MacWrite
D	MacPaint
E	Word
F	MORE
G	PageMaker
H	MacDraw
I	Ready, Set, Go!
J	Finder

Oops

The recent review of version 2.0 of *Trapeze* got the mouse rating correct, but fell down on a few other numbers. Data Tailor (the publisher) is now located at 3113 S. University Drive, Suite 500, Fort Worth, TX 76109. Their phone number is (817) 921-6083. And the price is no longer $149. It's $395.

Borland's new Turbo Pascal Family makes programming fast and easy

Turbo Pascal® code compiles and runs at better than a sizzling 12,000 lines per minute. Its clear, logical design makes it easy to learn and use.

Turbo Pascal is truly compatible with Inside Macintosh, which means that you're on familiar ground—that's why so many Mac users have made it their standard. Best of all, it's only $99.95!

The Turbo Pascal Tutor is just for you!

A companion to Turbo Pascal, Turbo Pascal Tutor quickly teaches you how to program your Mac in Pascal! This interactive tutorial on disk and 700-page manual really show you how— from the basics to advanced programming on the Mac— in Turbo Pascal, MPW Pascal or any version of the language you're using.

You get . . .

□ A concise history of Pascal and step-by-step concepts for the beginning programmer.

□ A Programmer's Guide taking you through all the specifics you'll need from Pascal program structure to data types, records and files.

□ An advanced programming section covering linked lists, stacks, sorting and searching algorithms and more.

□ A full guide to using the power of the Macintosh in Pascal, from use of the visual interface to memory management and debugging.

□ Source code on disk you can use in your own programs without paying royalties.

Only $69.95!

Turbo Pascal Numerical Methods Toolbox™

Numerical analysis at your fingertips! This complete collection of state-of-the-art routines and programs solves all the most common problems in science and engineering. And you're free to include the source code in your own programs. Includes:

□ Solutions to equations
□ Interpolations
□ Matrix operations: inversions, determinants and eigenvalues
□ Differential equations
□ Least squares approximations
□ Fourier transforms
Only $99.95!

Turbo Pascal Database Toolbox®

Provides you with the search and sort routines you need for your Pascal database applications.

□ Turbo Access locates, inserts or deletes records using B+ trees, and does it fast.

□ Turbo Sort uses the Quicksort method to sort data on single items or multiple keys.

□ You get source code on disk and a free sample database using the Mac interface that you can tailor to your specific needs.

Only $99.95!

❝ Turbo Pascal is fast: 12,000 lines of good, compiled Pascal code in 60 seconds.

Howard Katz, MACUSER **❞**
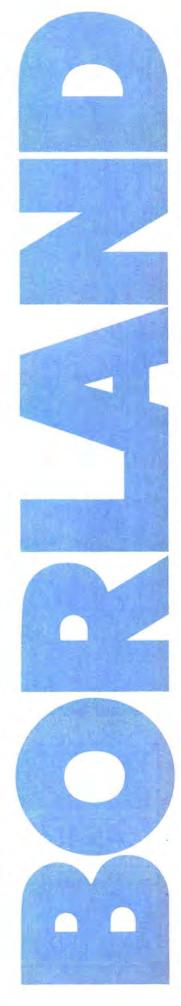
BORLAND
INTERNATIONAL
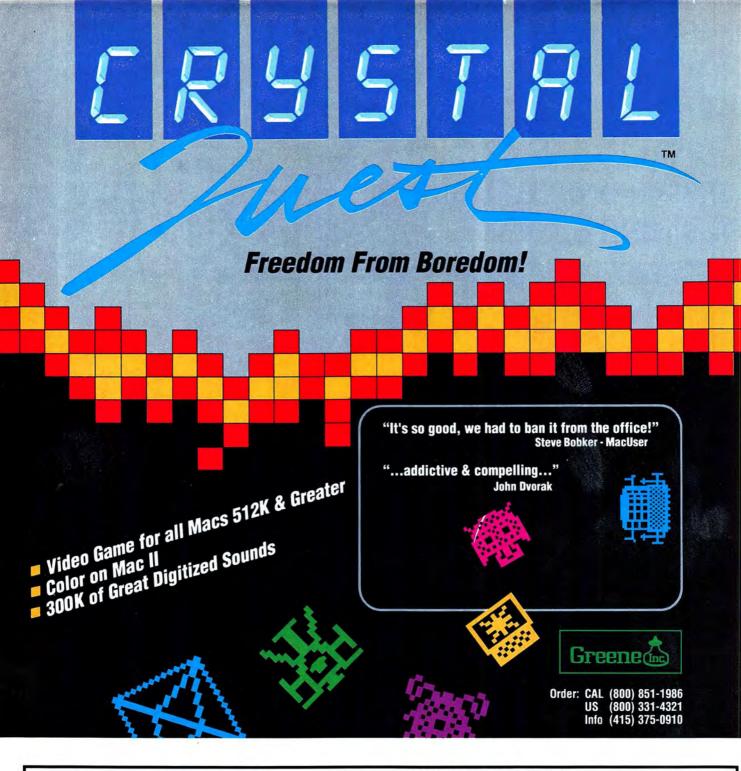
For the dealer nearest you or to order by phone

Call (800) 543-7543

Please circle 9 on reader service card.

Stronger Than Dirt

Is your mouse sluggish and unresponsive? Does slapping it around not help? MacClean, from Absolute of Denmark, can solve the problem. MacClean is a new cleaner designed to remove the dirt and dust that can slow down active mice. It comes in a reusable cartridge, has no moving parts and doesn't require the use of cleaning fluids. It is available through Apple dealers and software distributors at a suggested price of $12.95, and comes in all the Apple colors — in case you want to match your eyes or decor. For more information, contact Absolute USA at 55 Temple Place, Boston, MA 02111 or (617) 482-0286. — *Alane Bowling*

A Fitting Story

The search for the perfectly fitting shirt has ended. All you need is a tape measure, a sewing machine, a Mac and Andros SoftWear's *SewSoft Bodice*. This sewing software uses ten body measurements to create a custom-fitted, full-size pattern that consists of six or more pieces of standard printer paper joined together.

You can put *SewSoft Bodice* to use in the home or tailor shop. It works with any body type to create blouses, tops or shirts. And for the more adventurous, it will adjust commercial patterns, modify styles or copy a ready-made garment design. The program promises the perfect fit no matter how many times your bathroom scale goes up and down. Just put in the new measurements and in 15 minutes your new size is created (with no size tag to tattle). It also stores measurement data.

Included in the package is a user's manual with illustrated explanations of how to take the measurements and help for the computer novice. The only thing it's lacking is coverage for the lower part of the body.

So get your pins, needles, Macs and fig leaves ready and call Andros SoftWear at (415) 728-3553. The question to be asked now is: "Where are my pants?" — *Dori Harshman*

Talk, Talk, Talk

RealTalk, an innovative networking product from CogNetics, falls somewhere between an email system and a file server (It's not really either one, but it's not *not*, either). *RealTalk* lets you simultaneously talk, send files and share windows between terminals on an AppleTalk network.

In its Chat mode, *RealTalk* displays two windows on-screen and a conversation can take place in real-time without sending a message and having to wait for a reply. A transcript is automatically kept of all conversations.

RealTalk's most unique feature is its WindowServing. Any window on one computer can be displayed on another computer. Any changes made by the host are automatically updated on the remote machine. However, this only works in one direction.

Like all good network products, you can send files to another terminal with *RealTalk*. And you can take it a step further by sending several files in one operation.

RealTalk is accessed as a desk accessory, but also provided is an application that works under *MultiFinder*. It doesn't require a server and the developer hopes to make it compatible with 512K Macs, although at press time it only worked on 1-megabyte systems. Although marketing plans aren't fixed, *RealTalk* is expected to come in at $75 to $90 a node. CogNetics can be reached at 200 3rd Ave. North, Suite 210, Minneapolis, MN 55401; (612) 338-7741. — *BT*

UPDATES

Programs, like wine, often improve with age. To get the most out of your programs, you should be using the most recent versions. Here's a list of the current version numbers (as of press time) of many popular programs. The version number of a program can usually be found by running the program and checking the ABOUT... item at the top of the Apple menu.

Apple *System* software is special. Generally, and unless you have a 128K Mac, you should be running the latest System software. (128K owners should continue to use *System* 2.0 and *Finder* 4.1.) Also check the chart in this month's 'Help Folder."

The latest Apple *System* software is available free from most user groups, national on-line services and local BBSs. The deluxe version (four disks, boxed and well-documented) can be purchased through Apple dealers for $49.95. It includes the long-awaited *MultiFinder* 1.0. As information on *MultiFinder* compatibility becomes available, we'll keep you informed.

All programs listed here are HFS compatible. The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible (not yet a comprehensive list); and S, shareware (try before you buy software). Changes and new listings are shown in **bold**. Compatibility is sometimes in the mind of the beholder. Programs listed as Mac II compatible may not perform 100 percent of the functions they offer on other Macs, nor do they necessarily take full advantage.

Program	Version	Code	Program	Version	Code	Program	Version	Code	Program	Version	Code
A.A.I.S. Prolog	M1.15	NCP	FONTastic	2.8	NCP	MacLabeler	2.2	CP	QUED/M	2.04	NCP
Acta	2.0	NCP,//	FONTastic Plus	1.4	NCP, //	MacMoney	2.02	NCP	Rags to Riches	3.0	CP,//
AMS General Ledger	2.08	NCP	Font/DA Mover	3.6	NCP	MacMovies	1.02	NCP	Ragtime	1.1	CP,//
AppleShare	1.1	NCP	Fontographer	2.3	CP	MacNosy V2	2.8	NCP	Ready, Set, Go!	4.0	NCP,//
Aztec C	1.06H.1	NCP	Forecast	2.0	NCP,//	MacPaint	2.0	NCP,//	Record Holder	2.1	NCP
Back to Basics	1.03	NCP	Frame Mac	1.1	NCP,//	MacPalette	1.0	CP	REdit	1.2	NCP
Balance of Power	1.03	CP	FreeTerm	2.0	NCP, //	MacPascal	2.1	CP	Red Ryder	10.3	NCP
Bulk Mailer	3.0	NCP,//	FullPaint	1.0	NCP	MacProject	1.1	NCP	Reflex Plus	1.0	NCP
Business Filevision	1.1	NCP	Gato	1.42	CP	**MacProof**	3.0	NCP	ResEdit	1.1b7	NCP,//
CalendarMaker	3.0	NCP,S	Glue	1.04	NCP	**MacSafe**	1.08	NCP,//	Sargon III	1.0	CP
Chart	1.0	CP	**GraphicWorks**	1.13	NCP	MacServe	2.3	CP,//	Scoop	1.01	NCP,//
Chooser	3.2	NCP	Hard Disk 20	1.1	NCP	MacSpec	1.3	CP	SideKick	2.0	NCP
ClickArt Effects	1.01	NCP,//	Hard Disk Utility	2.0	NCP	MacSpin	1.1	CP	Silicon Press	1.1	NCP
Clipper	1.01	NCP	HD Backup	1.0	NCP,//	MacSpool	2.1	NCP	Slide Show Magician	1.3	CP
ColorChart	1.3	NCP	HD SC Setup	1.5	NCP,//	MacTerminal	2.2	NCP	**Smartcom II**	3.0A	NCP,//
Colorizer	1.1	NCP,//	HFS Backup	2.01	NCP	MacTools (MFS/HFS)	7.0	NCP	SoundCap	4.4	CP
ColorMate	2.1	NCP	HFS Locator Plus	2.0	NCP	MacWrite	5.0	NCP,//	Space Edit	2.0	CP,//
ColorPrint	2.03	NCP	Illustrator	1.0	CP/NCP, //	Mac Zap	5.0	NCP,//	SpellNow	1.0	NCP
Comic Book Factory	1.6	NCP,//				MailManager	1.0	CP	Spellswell	2.0	NCP
Comic Works	1.0	NCP,//	ImageWriter	2.6	NCP	MapMaker	2.0	NCP	StatView 512+	1.1	NCP
ConcertWare+	4.0	NCP,//	ImageWriter, AppleTalk	2.6	NCP	MDS	2.0	NCP	StatWorks	1.2	NCP,//
ConcertWare+MIDI	4.0	NCP,//	InBox	2.0	NCP	Measure Test	12.7	CP,S,//	Stella	1.3	CP,//
Copy II Mac	7.0	NCP	**Insight GL**	2.0	NCP,//	Megamax C	3.0	NCP	Straight Talk	2.08	NCP,//
Copy II HD	7.0	NCP	inTalk	3.0	CP	MicroPhone	1.1	NCP,//	Studio Session	1.4	CP
Cricket Draw	1.1	NCP,//	Jazz	1A	CP	**Micro Planner Plus**	5.8b	NCP	SuperPaint	1.00	NCP,//
Cricket Graph	1.2	NCP	JustText	1.1	NCP	MindWrite	1.1	NCP, //	Switcher	5.1	NCP
Deluxe Music Con-			Laser Author	1.3	NCP,//	miniWriter	1.39	NCP,S	System (MFS-128K)	2.0	NCP
struction Set	2.0	CP	Laser Prep	5.0	NCP	MockPackage+	4.3.4	NCP,S	System (HFS)	4.2	NCP
DesignScope	1.14	NCP,//	LaserShare	1.0	NCP	MORE	1.1C	NCP,//	Telescape Pro VT 100	1.3	NCP
Disk Express	1.10	NCP	LaserSpeed	1.5	NCP,//	MPW	2.0b	NCP	Tempo	1.2	NCP
Disk First Aid	1.0.1	NCP	LaserStatus	2.0	NCP	MS BASIC	3.0	NCP	ThinkTank 512	1.3	NCP
DiskFit	1.4	NCP,//	LaserWriter	5.0	NCP	MS BASIC Compiler	3.0	NCP	Thunder!	1.0.1	NCP
DiskInfo	1.45	NCP,S	Layout	1.3	NCP,S	MS Fortran	2.2	CP	Thunderscan	4.0	NCP
Disk Ranger	3.1	NCP	Legal Billing	1.72	NCP, //	**MS Works**	1.1	NCP	TML Pascal	2.01	NCP
DiskTop	3.0	NCP	Legal Billing II	2.39	NCP, //	Multiplan	1.1	NCP,//	TMON	2.8	NCP
Dollars & $ense	1.4	NCP,//	Lightspeed C	2.01	NCP	MusicWorks	1.1	CP	Top Desk	2.3	CP
Easy3D	1.01	NCP	Lightspeed Pascal	1.0	NCP	myDiskLabeler	2.11	NCP	TOPS	2.0	NCP,//
Edit	2.1	NCP	**Listen 2.0**	2.1	CP,//	Neon	2.0	NCP	Turbo Maccountant	2.0	NCP,//
Excel	1.06	NCP,//	Lode Runner	1.0	CP	Omnis III Plus	3.26	CP,//	**Turbo Pascal**	1.1	NCP,//
ExperCommon Lisp	2.2	NCP	Mac-3D	2.0	CP	OverVUE	2.1	NCP,//	VersaTerm	3.0	NCP
ExperLisp	1.5	NCP,//	MacASM	1.2	NCP	PackIt III	1.3	NCP,S	VersaTerm Pro	2.0	NCP
ExperLogo	1.1	NCP	MacBillboard	4.01	NCP,S	PageMaker	2.0a	NCP	**VideoWorks II**	2.0	NCP, //
EZ Draft	2.0	NCP,//	Mac C	5.0	NCP,//	Parameter Manager	1.092	NCP	VIP	2.2	NCP
File	1.05	CP	MacCalc	1.2	NCP	Performer	2.2	CP	Widgets	3.0	NCP
Filemaker Plus	2.0	NCP,//	Mac Disk Catalog II	2.1.1	NCP	PictureBase	1.2	NCP	Word	3.01	NCP
Finder (MFS-128K)	4.1	NCP	MacDraw	1.9.5	NCP	Plains and Simple	4.1	NCP,//	Write	1.0	NCP,//
Finder (HFS)	6.0	NCP	MacDraft	1.2b	NCP	PowerStation	1.1	NCP	WriteNow	1.0	NCP,//
FlashBack	1.6	NCP	MacFlow	1.02	NCP	Professional Composer	2.1	CP	**XPress**	1.1	CP/NCP,//
Flight Simulator	1.0	CP	MacGolf	2.0	CP	Profit Stalker II	1.3	NCP	ZBasic	4.0	NCP
Fokker Triplane	1.0	CP	MacInTalk	1.1	NCP	Project Billing	3.0	NCP,//			

Drive a Hard bargain

"You can easily fall in love with the quiet Jasmine drive… (It) ran flawlessly during the review period, with very good performance and no compatibility problems of any kind." *– MacWorld, July 1987*

"This drive is a pleasure to use. With a 26 msec average access time, it is one of the fastest drives around… It almost makes you feel young again." *Howard Bornstein – The MACazine, October 1987*

"Even though the Jasmine 80 is inexpensive, we could find no compromise in quality or features with this product." *– InfoWorld, June 29, 1987 (Overall Review Rating: 8.5)*

MacUser Eddy 1987 Best New Hard Disk

"The Jasmine Direct Drive 80 is an excellent value, offering not only outstanding price and performance, but an excellent price against the small disk market as well. *InfoWorld* highly recommends looking at this drive for your Macintosh." *– InfoWorld, June 29, 1987*

80MB $1399 ($1441.00 Visa/MasterCard)

50MB $1159 ($1193.00 Visa/MasterCard)

An unbeatable combination of quality, performance and price.

The acclaimed Jasmine Direct Drive 80 is the standard by which all others are judged. Powered by the incredible Quantum 80 MB hard disk drive, it has become one of the most desired Macintosh peripherals ever made. And, like all Jasmine products, a long list of "extras" come along for the ride. For the same performance in a 50 megabyte capacity, be sure to check out the Direct Drive 50, also powered by Quantum.

Remember that Jasmine saves you 40% or more. To order call (415) 621-4339. **VISA** **MasterCard**

Jasmine Technologies, Inc.
555 De Haro Street, San Francisco, CA 94107

Mac II Compatibility

This Mac II compatibility list was compiled by Benjamin Kuo and last updated November '87. The designation "N" "may imply anything from total bombs to misplaced animation/graphics, either of which render the application useless for normal use."

Program	2	4	16	256	Comments
101 Macros for Excel	Y	Y	Y	Y	
Acta	Y	Y	Y	Y	
Ancient Art of War	N	N	N	N	
Apache Strike Mission	N	N	N	N	
AppleShare	Y	Y	Y	Y	
Archon	N	N	N	N	
B3Images	Y	Y	Y	Y	
Balance of Power	Y	Y	Y	Y	
BallyHoo	Y	Y	Y	Y	
BigScreen Screen Extender	N	N	N	N	
Borrowed Time	N	N	N	N	
Bridge (4.0 & 5.0)	Y	Y	Y	Y	
Bulk Mailer	Y	Y	Y	Y	
Bureaucracy	Y	Y	Y	Y	
Canvas	Y	Y	Y	Y	
Cairo Shootout	Y	N	N	N	
C.A.T. (Contact-Activity-Tracker)	Y	Y	Y	Y	
Champion Boxing	N	N	N	N	
Chooser	Y	Y	Y	Y	
ClickArt Effects	Y	Y	Y	Y	
Coach	Y	Y	Y	Y	
ColorPrint	N	N	N	N	
ComicWorks	Y	Y	Y	Y	
Comic Strip Factory	Y	Y	Y	Y	
Comment	Y	Y	Y	Y	
ComServe	Y	Y	Y	Y	
ConcertWare	Y	Y	Y	Y	
ConcertWare MIDI	Y	Y	Y	Y	
(Disable MIDI, no player.)					
Copy II Mac	Y	Y	Y	Y	
Copy II Hard Disk	Y	Y	Y	Y	
Cricket Draw (v. 1.2)	Y	Y	Y	Y	
Cricket Graph	Y	Y	Y	Y	
CutThroats	Y	Y	Y	Y	
Dark Castle	N	N	N	N	(Not enough high bits.)
Deja Vu	Y	Y	Y	Y	
Delux Mountain Construction Set	N	N	N	N	(Fractals become inaccurate.)
DesignScope	Y	Y	Y	Y	
Dimensions CAD	Y	Y	Y	Y	
Dinner At Eight	Y	Y	Y	Y	
Disk Express	Y	Y	Y	Y	
Disk First Aid	Y	Y	Y	Y	
DiskFit	Y	Y	Y	Y	
DiskInfo	Y	Y	Y	Y	
Disk Ranger	Y	Y	Y	Y	
DiskTop	Y	Y	Y	Y	
Dollars & $ense	Y	Y	Y	Y	
Electronic Checkbook	N	N	N	N	
Enchanted Scepters	Y	Y	Y	Y	
ExperLisp	Y	Y	Y	Y	
EZ Draft	Y	Y	Y	Y	
FactFinder	Y	Y	Y	Y	
Fedit Plus	Y	Y	Y	Y	
Ferrari Grand Prix	N	N	N	N	
FileMaker	Y	Y	Y	Y	
FileMaker Plus	Y	Y	Y	Y	
Findswell	Y	Y	Y	Y	
Flight Simulator	N	N	N	N	
Fluent Fonts (v. 1 & 2)	Y	Y	Y	Y	
Fokker Triplane	N	N	N	N	
FONTastic Plus	Y	Y	Y	Y	
Font/DA Mover	Y	Y	Y	Y	
FontEdit	Y	Y	Y	Y	
Fontsie	Y	Y	Y	Y	
Forecast	Y	Y	Y	Y	
Frame Mac	Y	Y	Y	Y	
Freeterm	Y	Y	Y	Y	
FullPaint	Y	N	N	N	
Gato	N	N	N	N	
Gemstone Warrior	N	N	N	N	(Works, but unuseable graphics.)
Glue	Y	Y	Y	Y	
GrayPaint	Y	N	N	N	
GridMaker	Y	Y	Y	Y	
GridWars	N	N	N	N	(Crashes.)
Guild Of Thieves	N	N	N	N	(Bad screen placement.)
Hardball	Y	N	N	N	(Works, no sound.)
Hard Disk 20	Y	Y	Y	Y	
Hard Disk Utility	Y	Y	Y	Y	
Harrier Strike Mission	N	N	N	N	
Helix, Double	Y	Y	Y	Y	
HFS BackUp	Y	Y	Y	Y	
Hitchhiker's Guide	Y	Y	Y	Y	
HyperCard	Y	Y	Y	Y	
Illustrator	Y	Y	Y	Y	
In-House Accountant	Y	Y	Y	Y	

Program (Y=works; N=does not)	2	4	16	256	Comments
Insight GL	Y	Y	Y	Y	
InTalk 3.0	Y	Y	Y	Y	
Laser Author	Y	Y	Y	Y	
Laser FX	Y	Y	Y	Y	
Leather Goddesses of Phobos	Y	Y	Y	Y	
Legal Billing	Y	Y	Y	Y	
Legal Billing II	Y	Y	Y	Y	
Lightspeed C	Y	Y	Y	Y	
Lightspeed Pascal	Y	Y	Y	Y	
Lode Runner	N	N	N	N	
Mac C	Y	Y	Y	Y	
MacCalc	Y	Y	Y	Y	
Mac Disk Catalog II	Y	Y	Y	Y	
MacDraw	Y	Y	Y	Y	
MacDraft	Y	Y	Y	Y	
MacFlow	N	N	N	N	
MacGolf	N	N	N	N	(Works: golfer in mid-air!)
MacInTalk	N	N	N	N	
MacInooga	Y	N	N	N	(DO NOT use Scroll bar!)
MacInUse	Y	Y	Y	Y	
MacLightning	Y	Y	Y	Y	
MacLink Plus	Y	Y	Y	Y	
MacMan	Y	N	N	N	(Graphics weird.)
MacMoney	Y	Y	Y	Y	
MacMovies	N	N	N	N	
MacPaint	Y	Y	Y	Y	(Version 2.0)
MacProject	Y	Y	Y	Y	
MacProof 3.0	Y	Y	Y	Y	
MacRaquetball	Y	Y	Y	Y	
MacServe	Y	Y	Y	Y	
MacStronomy	Y	Y	Y	Y	
MacTerminal	Y	Y	Y	Y	
MacTools	Y	Y	Y	Y	
MacWrite	Y	Y	Y	Y	
Mac Zap Copier	N	N	N	N	
MapMaker	Y	Y	Y	Y	
MarketPro	Y	Y	Y	Y	
MazeWars	N	N	N	N	
McMax	Y	Y	Y	Y	
Measure Test	Y	Y	Y	Y	
MergeWrite	Y	Y	Y	Y	
MGM CAD	Y	Y	Y	Y	
Microphone	Y	Y	Y	Y	
MindWrite	Y	Y	Y	Y	
miniWriter	Y	Y	Y	Y	
MockPackage	Y	Y	Y	Y	
Mouse Stampede	Y	Y	Y	Y	
MORE	Y	Y	Y	Y	
MPW	Y	Y	Y	Y	
MS BASIC	Y	Y	Y	Y	
MS BASIC Compiler	Y	Y	Y	Y	
MS Excel 1.04	Y	N	Y	Y	
MS Word 3.0	Y	Y	Y	Y	
MS Works	N	N	N	N	(Patch available.)
MultiFinder	Y	Y	Y	Y	
Music Mouse	N	N	N	N	(MIDI addresses incompatible.)
myDiskLabeler	N	N	N	N	
Nord & Bert	Y	Y	Y	Y	
Ogre	N	N	N	N	
One on One	N	N	N	N	
OrbQuest	N	N	N	N	
Omnis III Plus	Y	Y	Y	Y	
Orbiter	Y	Y	Y	Y	(Way too fast.)
OverVUE	Y	Y	Y	Y	
Packit III	Y	Y	Y	Y	
PageMaker	Y	Y	Y	Y	
Patton vs. Rommel	Y	Y	Y	Y	
Performer	N	N	N	N	
Pinball Construction Set	Y	N	N	N	(Too fast, screen image terrible.)
Pixel Paint	N	N	Y	Y	(Beta—word of mouth.)
Plains and Simple	Y	Y	Y	Y	
Post-it	Y	Y	Y	Y	
PowerStation	Y	Y	Y	Y	
PRAM 5.0	Y	Y	Y	Y	
Professional Bibliography	Y	Y	Y	Y	
Project Billing	Y	Y	Y	Y	
Psion Chess	Y	Y	Y	Y	
Pyro!	Y	Y	Y	Y	
QuicKeys	Y	Y	Y	Y	
Q&D Utilities v.1	Y	Y	Y	Y	
Q&D Utilities v.2	Y	Y	Y	Y	
Radical Castle	Y	Y	Y	Y	
Rags to Riches	Y	Y	Y	Y	
Ragtime	Y	Y	Y	Y	
Ready, Set, Go! 3	Y	Y	Y	Y	

Program					Notes
Record Holder Plus	Y	Y	Y	Y	
Red Ryder 9.4	N	N	N	N	(Cannot dl; bad placement of graphics.)
Red Ryder 10.0	Y	Y	Y	Y	
ResEdit	Y	Y	Y	Y	
Resume Writer	Y	Y	Y	Y	
Rogue	Y	Y	Y	Y	
Sargon III	Y	Y	Y	Y	
Scarbs of Ra	Y	Y	Y	Y	
Sentinel	Y	Y	Y	Y	
Shadowgate	Y	Y	Y	Y	
Shanghai	Y	Y	Y	Y	(Works, but hangs computer after Quit.)
SideKick	N	N	N	N	
Skyfox	N	N	N	N	
SmartAlarms	Y	Y	Y	Y	
Smartcom II	Y	Y	Y	Y	
Smash Hit Raquetball	N	N	N	N	
Smash Hit Raquetball II	Y	Y	Y	Y	
SmoothTalker	N	N	N	N	
SoundCap	Y	Y	Y	Y	(Usable, inaccurate graphics.)
Spellswell	Y	Y	Y	Y	
Starleague Baseball	N	N	N	N	
StatView 512	Y	Y	Y	Y	
StatWorks	Y	Y	Y	Y	
Stella	Y	Y	Y	Y	
Stepping Out	N	N	N	N	
Straight Talk	Y	Y	Y	Y	
Strategic Conquest 1.0	Y	Y	Y	Y	(Old version; non-modem; sound.)
Studio Session	N	N	N	N	
StuntCopter	Y	Y	Y	Y	
Sub Battle Simulator	N	N	N	N	
Suitcase	Y	Y	Y	Y	
SuperLaserSpool	Y	Y	Y	Y	
SuperPaint	Y	N	N	N	
SuperPlay	Y	Y	Y	Y	(Best program for digitized sound.)
SuperSpool	Y	Y	Y	Y	
Switcher	N	N	N	N	
Temple of Aphsai	N	N	N	N	
The Pawn	N	N	N	N	
Thunder	Y	Y	Y	Y	(May not work with MultiFinder.)
TML Pascal	Y	Y	Y	Y	
TMON	Y	Y	Y	Y	
Turbo Download	Y	Y	Y	Y	
Turbo Maccountant	Y	Y	Y	Y	
Turbo Pascal	Y	Y	Y	Y	(Bombs occasionally after run.)
Typing Made Easy	Y	Y	Y	Y	
Ultima II	N	N	N	N	
Ultima III	N	N	N	N	
Uninvited	Y	Y	Y	Y	
VersaTerm	Y	Y	Y	Y	
VersaTerm Pro	Y	Y	Y	Y	
VideoWorks	N	N	N	N	
VideoWorks II	Y	Y	Y	Y	
Videx FunPack	N	N	N	N	
VIP	Y	Y	Y	Y	
Winter Games	N	N	N	N	
Wizardry	N	N	N	N	
Word Finder DA	Y	Y	Y	Y	
Word Tools	Y	Y	Y	Y	
WorldBuilder	Y	Y	Y	Y	(All WorldBuilder games work.)
WriteNow	Y	Y	Y	Y	(Underline does not work properly.)
XPress	Y	Y	Y	Y	
ZBasic	Y	Y	Y	Y	
Zork I, II, III	Y	Y	Y	Y	

Report From the Trenches

November 1987, NEW YORK, NY — MacFair made its debut last fall — struggling, not always successfully, to establish itself as the premiere New York City Macintosh convention. Although Mac-Fair was aimed at corporate users, it failed to attract the major corporate player, Apple. Set on the 55th Street Pier on the Hudson River, one attendee remarked that Apple's absence made it a "guerrilla convention."

Though the Big Apple didn't attract Apple Computer, 80 companies showed up to display their wares. Among them were Solutions International, the people who brought you *SmartScrap & The Clipper*. They introduced *The Curator*, a graphics data base that works as a desk accessory. While major league companies like Aldus were represented, their booth was little more than a bare table with a lone Mac demonstrating *PageMaker* 2.0.

Local companies made the biggest showing. And some had products that were just plain bizarre. Business Technology Manufacturing showed how you could gut the motherboard from your Mac and put it into a box that looks like it came from a Taiwanese IBM PC clone manufacturer. Whether this was camouflage or just a sadistic desire to mutilate the Mac remains unclear.

The promoters estimated that the struggling MacFair attracted a crowd of 10,000 Macintosh users. While not all of them went home pleased, they at least rubbed

BUG OF THE MONTH

This month's bug involves Apple's *Finder* and was discovered by Morley Chalmers of Don Mills, Ontario. Unfortunately, it cost his firm the loss of a lot of data to discover this interface flaw.

When you copy one disk to another by dragging one icon onto another, you expect that all the files on the first disk are copied onto the second disk. Indeed, the warning dialog box says just that. That is *not* what happens, however. All the files actually residing in the disk window are copied. But any files that you might have positioned on the desktop (for quicker access) are left behind. There's no warning that this is happening and there's no way to see what happened other than to remove the first disk and check the copy. New and naive users can easily fail to ensure that all files have been copied, putting their faith in the assurances of the dialog box.

Apple Canada has acknowledged the problem and said that they, too, have lost data to it. Further, it is their opinion that the fix involves no more than three lines of code.

The *Finder* must simply check the desktop when copying. It does do that when you drag one hard disk icon onto another. In that case, all the files on the original disk go into the folder established on the target hard disk. And copying from a floppy to a hard disk also works if there are loose files on the desktop. It's only when copying from a floppy to a floppy that you risk leaving valuable material behind. This problem occurs with all *Finder*s, from the oldest to the newest.

We've sent Mr. Chalmers our bug-finder reward of $25. If we select and publish your bug, we'll pay you $25, too. Send your bugs, well-wrapped, to Bugsy, c/o *Mac-User*, 110 Marsh Drive, Suite 250, Foster City, CA 94404. Be sure to include all the version numbers of the application and your System software and tell us if you have any unusual DAs or other programs installed, so we can recreate your bug. — *H. D. Plant*

shoulders with disembarking ocean liner passengers at the 55th Street Pier.

Another MacFair is planned for November '88. Will Apple show up next time around? MacFair organizer, Victor Harwood, says "I can't imagine anyone wanting to ignore New York as a marketplace." But considering the difficulty of hailing a taxi in the area — known locally as Hell's Kitchen — I can see why people might shy away. — *BT*

Sound Off

MacRecorder is an inexpensive (list price $199) hardware/software combination that may open the door for adding digitized sound to Mac applications and documents the way ThunderScan opened the door for scanned graphics. The hardware, a mouse-sized box that plugs into your Mac, includes a built-in microphone, a volume control and jacks for an external microphone or line input.
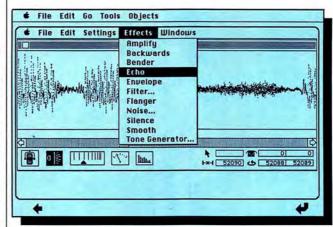
Two software packages (their names were not yet finalized at press time) are part of the *MacRecorder* package. One lets you attach sounds to *HyperCard* stacks, making it simple to develop interactive audio/video presentations, training materials, and so on. A more sophisticated program lets you mix and edit your sounds with CUT, COPY and PASTE commands as well as adding special effects such as echoing, envelope shaping, looping and translating various sound file formats (for example, system re-source sounds, instrument sounds for programs like *Studio Session* and MIDI sampler files).

You can record in stereo (if you buy two *MacRecorders*). Sounds can be sampled at rates up to 22 KHz. An 8:1 compression option and lower sampling rates are also available if saving memory is more important than high fidelity. Farallon Computing, the manufacturer, is working with several software publishers to bundle *MacRecorder* with their applications. At least one *MacUser* editor is known to talk frequently (and vehemently) to her Mac ("They're dialog boxes, aren't they? Well, it takes two to dialog"); future generations of software may talk back ("Your spreadsheet is ajar"). Contact Farallon at 2150 Kittredge Street, Berkeley, CA 94704; (415) 849-2331. — *JZ*

Free for the Asking

There may not be any such thing as a free lunch, but there does seem to be free software from time to time. This time it's Layered with an offer of a free Accounts Payable module for anyone who bought *Insight* between October 1 and December 31, 1987. This offer is made through participating dealers and is good until the end of March '88. For information on participating dealers in your area, call Layered at (617) 242-7700. — *LK*

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by Robert R. Wiggins

On the Bleeding Edge

Ten years ago there were no microcomputers in the business community. None. Zero. Zip. Then in the late 1970's some brave souls began carrying in their Apple IIs from home, but the microcomputer was looked at as an oddity that didn't really have a place in business. Then IBM "legitimized" the industry in 1980 with the introduction of the PC and the business world scrambled to get the promised productivity increases. Four years ago the Macintosh bowed and was looked down at as a "toy" by the business market. Then came the Laser-Writer, Mac Plus and PageMaker, and the Mac started moving into art departments and creeping into other departments and offices. Last year came the Macintosh II, which made the Mac a real business machine, even a workstation, in the eyes of business, and the productivity wave washed onward. But it still wasn't enough. The double-digit productivity gains and rapidly declining hardware prices weren't enough. Businesses wanted more.

The first "multi" businesses clamored for was multi-user. Companies were networking their PCs and Macs, and they wanted to share data. File servers were created to fill this need. There were software solutions and hardware solutions and mixed solutions. Even Apple joined in with the *AppleShare* file server system, and later an EtherNet card and other add-ons for the Mac II. And application programs began appearing that were multi-user, like *4th Dimension*.

But this still wasn't enough. The wave of progress washed onward as business users began demanding multitasking. It wasn't enough to share data and programs; they wanted to do more than one thing at the same time. So IBM and Apple went back into the labs and came out with two wildly different approaches to the problem. IBM came up with a whole new operating system. To reap the benefits of multitasking, users must buy this new OS for several hundred dollars, then buy new versions of the programs they use (assuming the companies who publish them are rewriting them for OS/2).

Apple chose a different tack, and modified their existing operating system by grafting on *MultiFinder,* an intricate operation involving changes to the *System* file and *Finder* as well as new files. *MultiFinder* comes free with all new Macs, and is available for $49 for older ones. And, most important, most existing Mac programs run unchanged (although many are being modified to take better advantage of *MultiFinder*). But for better or worse, multitasking is taking the business world by storm.

There is a problem, however, that most business users are overlooking in their multi mania. Networking and multitasking are on what's called the "leading edge" of technology. Many of the products now being offered were undreamed of only a few years ago. And there is a reason that the leading edge is often called the "bleeding edge:" the pioneer users of new technology are often battered and bloody by the time the technology stabilizes.

Most data processing centers wait from a few months to a year before moving to a new CPU or a new mainframe operating system, to let others discover all the problems and pitfalls. But these same organizations charge wildly ahead networking their microcomputers and upgrading their operating systems in pursuit of multitasking.

There is psychology at work here. Macintosh users, especially in business, are "early adopters" of technology. The very reason the Macintosh became a success was the willingness of these people to buy into a new technology. Many business users had to fight tooth and nail, or use guerilla tactics, to get the Mac into the office in the first place. So when the Mac can provide networking at often less than half the cost for PC networking, or provide multitasking sooner and easier than the IBM solution, it's only natural that these early adopters want to use these capabilities, not only for themselves but to rub their colleagues' noses in it. The problem lies in reconciling the early adopter attitude with the importance of stability to the business.

The bottom line is that the Macintosh is in businesses to enhance productivity, and the leading edge technologies look very attractive in this context. But these technologies bring instability, which is anathema to business. The solution to this dilemma, as is so often the case, lies in simple common sense: be careful and thorough.

When looking at networking, for instance, make sure that the ends justify the pains that will be encountered on the way. Is it really necessary, or are you just networking for its own sake? Will the productivity gains outweigh the potential losses caused by network problems

and downtime? Is there a compelling business need that overrides any potential problems?

MultiFinder poses a special problem, as it is now an integral part of the system. But it's still unnecessary to invoke its power if it's not required. Will the productivity gained be worth the possible loss from occasional system crashes with possible data loss? In many cases, and with the many applications which are relatively stable under *MultiFinder,* the answer will be yes. But when the data is critical, discretion may be the better part of valor, and *MultiFinder* should be turned off — which unfortunately involves restarting the Mac. As a compromise, use common sense and save more frequently and make backups more often. Of course, since most business users don't back up enough as it is, this is always sound advice.

I know, I know. I sound like a curmudgeon, always stressing the negative while everyone else sings the praises of new technology. But I think it's important to keep a level head and not be overcome by the new. Look at new technologies as tools, rather than as ends in themselves, and weigh the potential costs against the potential benefits before charging wildly ahead at full speed. Personally, I think *MultiFinder* is pretty spiffy, and if nothing else, it makes *HyperCard* useful. But when I'm working on important documents, I restart my Mac without *MultiFinder.* Better safe than sorry.

PINSTRIPE PICKS

Some products worth looking into if you use your Macintosh for business:
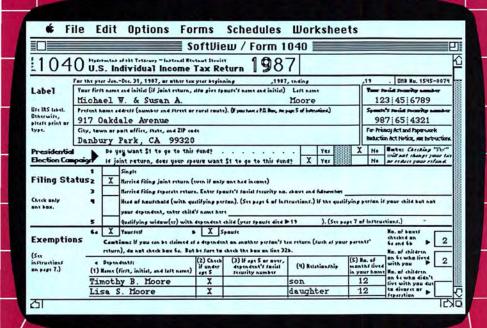
Smartcom II 3.0: from Hayes. A long overdue update to a great telecommunications program, offering color and *MultiFinder* support.

Focal Point: from Activision. Danny Goodman's "business-in-a-stack," with everything but the kitchen sink in a *HyperCard* stack for business use. Must be seen to be believed.

Business Class: from Activision. Danny Goodman's *HyperCard* stack for planning world travel, with information about countries and currencies around the world. For globetrotters only, though, with minimal U.S. information.

Videoworks II: from Macromind. Professional quality animation and color presentation package. Greatly enhanced over previous incarnations. ▣

Programs & Peripherals

Picks of the Month

Numeric-Turbo by Cambridge Automation

Now you can cut your data input time in half with **Numeric-Turbo**, a new high-speed input device combining the fast response of a track-ball with a full-scale numeric keypad. The *Numeric-Turbo* includes cursor keys and direct function keys and its ideal for use with Jazz, Multiplan, Dollars & Sense, and any other Mac software where you want your figures faster.

Numeric-Turbo *(Mac128k/512k/MacPlus)* .... **99.**

C.A.T. by Chang Laboratories

C.A.T. stands for Contacts-Activities-Time and lets you link events, people, and schedules to keep track of the relationships in your business or personal life. You can organize contact information into views that allow automatic follow-up on strategies, contacts, correspondence, dates, names, key facts and figures. *C.A.T.* integrates database, mailmerge, and calendaring functions without you having to learn a programming language!

C.A.T. (Contacts Activities Time) .... **229.**

PixelPaint by SuperMac Software

PixelPaint's familiar Macintosh operations unlock the power of color hidden inside your Macintosh II. You can customize pallettes of up to 256 colors from the Mac II's 16.8 million. Produce breathtaking color comps and create incredible effects: zoom, rotate, vary brush strokes, use drop shadows, free rotation, airbrush, tile, fill and color. *PixelPaint* allows you to send your output to a LaserWriter, Linotonic, Postscript or QuickDraw-compatible printer, film recorder or slide maker.

PixelPaint *(Macintosh II)*...................................... **249.**

Utility Software

Apple Computer		Icon-It! *(Assign Icons to Menu Items)*	39.
Switcher Construction Kit	14.	Read-It! TS *(For Thunderscan)*	89.
ALSoft		Read-It! O.C.R.	
Disk Express 1.10	26.	*(For Image Scanners)*	179.
Berkeley System Design		**Software Supply**	
Stepping Out *(Macintosh		Suitcase or Power Station	38.
Screen Extender)*	55.	**SuperMac Software**	
CE Software		SuperSpool *(ImageWriter	
QuicKeys *(Macro Program)*	65.	Print Spooler Utility)*	42.
DiskTop 3.0		SuperLaserSpool	82.
(Portable DA Finder)	32.	Multi-User SuperLaserSpool	199.
CalendarMaker 3.0		Diskfit 1.3	
(Custom Calendars)	32.	*(Backup & Restore Utility)*	54.
Central Point Software		Sentinel	82.
Copy II Mac *(Includes MacTools)*	22.	**TOPS**	
Fifth Generation Systems		Tops For The Macintosh 2.0	119.
FastBack For The Macintosh	59.	**Williams & Macias**	
Infosphere		myDiskLabeler	24.
MacServe *(Network Software)*	163.	myDiskLabeler w/Color	31.
LaserServe *(LaserWriter Print Spooler)*	63.	myDiskLabeler	
Olduvai Software		w/LaserWriter Option	34.
DA-Switcher II		**Working Software, Inc.**	
(Switch Multiple Sets of DA's)	25.	Findswell *(Document Finder)*	29.

Desk Accessory Programs

Affinity Microsystems Tempo II	89.	**Imagine Software**	
Tempo 1.2	53.	Smart Alarms & Appointment Diary	35.
AffiniFile	49.	Multi-User Appointment Diary	
Borland SideKick V2.0	59.	with Smart Alarms	95.
Cortland Top Desk	32.	**Solutions, International**	
Greene, Inc. QuickDex 1.4	24.	SmartScrap & The Clipper	35.

Languages

Apple Computer MacPascal	99.	**Mainstay**	
Borland		V.I.P. *(Visual Interactive Programming)*	85.
Turbo Pascal	59.	**Microsoft**	
Turbo Pascal Database Toolbox	59.	Microsoft Basic Interpreter 3.0	62.
Turbo Pascal Numerical Methods	59.	Microsoft Basic Compiler 1.0	119.
Turbo Pascal Tutor	49.	Microsoft Fortran Compiler 2.2	169.
Consulair		**THINK Technologies** Lightspeed C	109.
Macintosh 68000 Development System	59.	Lightspeed Pascal	65.

Communications Software

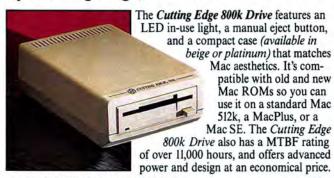|		
Apple Computer MacTerminal	99.	**Think Technologies, Inc.**	
Compuserve		InBox-Starter Kit V2.0	
Compuserve Starter Kit	24.	*(3 Personal Connections)*	209.
DataViz MacLink Plus with Cable	145.	InBox-Mac Connection	79.
Software Ventures		InBox-PC Connection	
Microphone 1.1 *(Includes Glue)*	119.	*(Req. AppleTalk Card)*	125.

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Double Helix II by Odesta Corporation

Double Helix II gives business professionals the power to create integrated solutions to information management problems. Using words and pictures rather than a complex programming language, *Double Helix II* is both easy to learn and even fun to use. Time billing, inventory control, project planning, accounting, and business analysis applications can be easily developed. And, applications are instantly expandable to share information with other Macintoshes and/or DEC's VAX computers.

Double Helix II .... **329.**

Cutting Edge 800k Drive by Cutting Edge, Inc.

The *Cutting Edge 800k Drive* features an LED in-use light, a manual eject button, and a compact case *(available in beige or platinum)* that matches Mac aesthetics. It's compatible with old and new Mac ROMs so you can use it on a standard Mac 512k, a MacPlus, or a Mac SE. The *Cutting Edge 800k Drive* also has a MTBF rating of over 11,000 hours, and offers advanced power and design at an economical price.

Cutting Edge 800k External Drive .... **175.**

Focal Point by Activision

Focal Point is a HyperCard-based desktop application that has everything needed to manage your time and tasks. *Focal Point* records everything from expenses to exciting ideas and it's completely customizable. HyperCard links *Focal Point's* tools to each other so your calendars are linked to your to-do lists, which are connected to your phone directory and call-logging system. And, *Focal Point* even has a document launcher that connects directly to your reports, letters, spreadsheets, whatever!

Focal Point .... **59.**

MacKids Educational Programs by Nordic Software

MacKids is a complete series of twelve quality educational software products for the Mac specifically designed to teach and entertain kids. Whether your children are preschoolers or young adults, there's a *Mac Kids* package that will give them the learning edge.

Preschool Disk 1 (3-7), Preschool Disk 2 (3-7), CoinWorks (4-12), ClockWorks (4-10), Early Elementary 1 (6-9), Lemonade Stand (6-16), FlashWorks (6-adult), Naval Battle (6-adult), Word Search (6-adult), Alphabetizer (7-adult), EarthWorks (10-adult), or Bodyworks (10-adult).

Each Program .... **29.**

Write*Now* by T/Maker

Write*Now* for Macintosh combines the power you would expect from a dedicated word processing system with the ease of operation that you are used to with MacWrite. Write*Now* is fast especially with large documents and allows true WYSIWYG editing in *one, two, three, or four columns* directly on-screen. And, Write*Now* also includes fast on-line spelling checking, graphics in the same line as text, and unlimited open documents.

Write*Now*... **97.**

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DataBase Management

Activision Focal Point	*Special*	59.	**Chang Laboratories** C.A.T.		
Business Class		32.	Contacts•Activities•Time	*Special*	229.
Acius 4th Dimension		559.	**Microsoft** Microsoft File 1.05		110.
Apple Computer HyperCard		44.	**Nantucket Software**		
Ashton Tate dBase Mac 1.0		295.	McMax *(dBase III Compatible)*		179.
Blythe Software Omnis 3 Plus/*Express*		279.	**Nashoba Systems** FileMaker Plus		149.
Omnis 3 Plus Multi-User			**Odesta** Double Helix II	*Special*	329.
(MacServe, Tops Network, Corvus,			Multi-User Helix		429.
Appleshare or Hypernet 2-5 users)		489.	**ProVUE Development** OverVUE 2.1		149.
Borland Reflex Plus		165.	**Software Discoveries** RecordHolderPlus		45.

Business Software

Apple Computer MacProject	159.	**Mainstay** Think 'n Time		
Bravo Technologies MacCalc	79.	*(Time Management Package)*		69.
Cricket Software Cricket Graph	124.	**Micro Planning Software**		
Cricket Presents...	289.	Micro Planner Plus		299.
Pict-O-Graph	105.	**Microsoft**		
Deneba Software Comment		Microsoft Works 1.1		179.
(Attach Electronic Notes to Files)	59.	Microsoft Multiplan 1.11		110.
Xtra 2.0	109.	Microsoft Chart 1.02		72.
Layered		Microsoft Excel 1.04		224.
Notes For Excel, Jazz, PageMaker,		Microsoft PowerPoint		Call
Microsoft Works or Word 3.0 *(each)*	41.	**Satori Software** Bulk Mailer 3.0		79.
Legisoft/Nolo Press WillMaker 2.0	30.	Bulk Mailer Plus		195.
Lotus Jazz 1A	189.	Legal Billing		369.
Lundeen & Associates		Legal Billing II		539.
WorksPlus Commands	62.	Project Billing		409.
MacroPac International		**Turner Hall Publishing**		
101 Macros For Excel	45.	MacSQZ!		59.

Word & Outline Processors

Apple Computer MacWrite	99.	Microsoft Write	109.
Living Videotext		**MindWork Software** MindWrite 1.1	159.
More 1.1C *(Color Version)*	Call	**Symmetry** Acta V2.0	36.
Microsoft Microsoft Word 3.01	239.	**T/Maker Company** WriteNow	*Special* 97.

Spelling & Grammar Checkers

Aegis Development		Coach Merriam Webster's Thesaurus 2.0	36.
Doug Clapp's Word Tools	42.	**Lundeen & Associates**	
A.L.P. Systems MacProof 3.0		WorksPlus Spell 1.1	46.
(Requires MacPlus)	119.	**Microlytics, Inc.**	
Batteries Included		Word Finder *(Synonym Finder)*	39.
Thunder! *(Interactive Spelling Checker)*	31.	**Sensible Software** Sensible Grammar	57.
Deneba Software Spelling Coach 3.0		**Working Software, Inc.**	
(Webster's/Medical/Legal/Hyphenation)	59.	Spellswell 2.0	42.
Spelling Coach 3.0 Professional		Spellswell Medical or Legal Dictionary	57.
(Adds Definitions & Thesaurus)	109.	Lookup *(Makes Spelling Suggestions)*	29.

Desktop Publishing

Addison-Wesley TEXtures	279.	**Postcraft International, Inc.**	
Aldus Corporation PageMaker	399.	Laser FX *(Special Effects*	
Allan Bonadio Associates		*for Desktop Publishing)*	120.
Expressionist 1.11 *(Equation Processor)*	49.	**Quark, Inc.** QuarkXPress	479.
Ann Arbor FullWrite Professional	169.	**Solutions, International**	
Boston Publishing Systems		Super Glue	
The MacPublisher III	119.	*(Graphics Integration Software)*	52.
Letraset Ready, Set, Go! 4.0	279.	**Target Software** Scoop	299.
ImageStudio		**Word Perfect Corporation**	
(Image Processing Software)	279.	Word Perfect for the Macintosh	199.

Accounting Packages

Chang Labs		**Migent** In House Accountant	119.
New Enhanced Version III Modules!		**Monogram** Business Sense	285.
Rags to Riches GL, AR, or AP	120.	Dollars & Sense 4.0	89.
Rags to Riches 3-Pak *(GL/AR/AP)*	289.	**Peachtree**	
Inventory Control or Professional Billing	239.	Back To Basics Three Pack	
Professional 3-Pak		*(GL/AR/AP)*	139.
(GL/Professional Billing/Payables)	359.	**Softview** MacInTax Federal 1987	69.
Retail Business 3-Pak	359.	California or New York	
Layered Insight One Write	189.	Supplement *(1987)*	39.
Insight Expert G/L, A/R, or A/P	349.	TaxView Planner *(1987-1991)*	49.
Insight Multi-User		**Survivor Software** MacMoney	
A/R, A/P, or Inventory	529.	*(Financial Planner)*	40.

Statistics & Math Packages

BrainPower		**Borland** Eureka! The Solver	129.
StatView 512 Plus	175.	**Systat** Systat 3.1 *(Specify Mac 512K,*	
Math View Professional	145.	*MacPlus, or Mac II)*	459.

Graphics Software

ABA Software Draw It Again Sam...	94.	**MacAtlas** Professional	129.
Adobe Systems Adobe Illustrator		**Miles Computing**	
(MacPlus, SE & Mac II)	379.	Mac The Ripper, Orchestra of Fonts,	
Altsys Corp. FONTastic *Plus*	47.	People-Places-Things, or	
Fontographer 2.2	239.	Taking Care of Business *(each)*	27.
Ann Arbor Softworks Full Paint	49.	**Mindscape** ComicWorks	47.
Apple Computer MacPaint	99.	GraphicWorks 1.1	87.
Broderbund Print Shop	37.	**Olduvai Software** Post-ART *(3-Disk Set)*	35.
VideoWorks II	118.	**Silicon Beach Software**	
Casadyware Fluent Fonts 2.0 *(2-Disk Set)*	28.	Digital Darkroom	114.
Fluent Laser Fonts Vol. 1-15 *(ea)*	46.	SuperPaint	79.
Deneba Software Canvas 1.0		Silicon Press	41.
(Includes Desk Accessory)	109.	**Solutions International** The Curator	79.
Canvas DA	59.	**Springboard** Certificate Maker	24.
Dubl-Click Software		**SuperMac Software** Pixel Paint *Special* 249.
World Class Fonts! *(Both Volumes)*	36.	**Symmetry** PictureBase	59.
WetPaint *(Both Volumes)*	36.	**T/Maker**	
Enzan-Hoshigumi USA		Click Art Letters I, Letters II, Personal	
MacCalligraphy 2.0	115.	Graphics, Publications, Effects,	
Japanese Clip Art Scroll 1		Business Image, or Holidays *(each)*	28.
"Heaven" or Scroll 2 *"Earth"*	59.	Christian Images	35.
Japanese Clip Art *"Borders"* Scroll	69.	Click Art EPS Illustrations	Call
Foundation Publishing		Click Art Laser Fonts: Plymouth,	
Comic Strip Factory	45.	Bombay, or Seville *(each)*	45.
Comic People	26.	**Unison World** Chest Top Publishing	38.
Micro: Maps MacAtlas Paint Version	32.	**Zedcor** DeskPaint 1.0	39.

CAD Products

Apple Computer MacDraw	159.	Professional 3D	199.
Challenger Software		**Innovative Data Design**	
Mac 3D *(Enhanced Version 2.0)*	119.	MacDraft 1.2A	149.
Cricket Software Cricket Draw	169.	**Silicon Beach Software** Super 3D	159.
Enabling Technologies Easy 3D	79.	Super 3D Enhanced *(Mac II)*	249.

Educational/Creative Software

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Bogas Productions Studio Session	52.	Concertware+ 4.0 or American Discovery	39.
Broderbund Jam Session	30.	Concertware+ MIDI 4.0	79.
Geometry, Calculus or Physics	63.	**Hayden** MusicWorks	29.
Compu-Teach Once Upon A Time	24.	Score Improvement System for the SAT	58.
Stepping Stones Level I or Level II	24.	**Learning Company** Reader Rabbit	34.
Davidson & Associates Speed Reader II	39.	**Mindscape** Perfect Score SAT	
Math Blaster or Word Attack!	27.	w/The Perfect College	46.
Electronic Arts		**Nordic Software**	
Deluxe Music Construction Set V2.0	62.	MacKids Educational	
1st Byte/Electronic Arts		Programs *(each)*	*Special* 29.
Kid Talk, Speller Bee,		**Rubicon Publishing**	
First Shapes, or Math Talk	32.	Dinner at Eight-Silver Palate Bundle	51.
Mathtalk Fractions, First Letters &		**Simon & Schuster** Typing Tutor IV	35.
Words, or Smoothtalker	32.	Speed Reading Tutor IV	32.
Great Wave Software TimeMasters	22.	**Springboard** Early Games for	
KidsTime or NumberMaze	27.	Young Children or Easy as ABC	28.

Game Software

Accolade Hard Ball	23.	Plundered Hearts, Stationfall,	
Activision Hacker II or Shanghai	24.	The Lurking Horror, Trinity,	
Star League Baseball or		or Zork I *(each)*	24.
Tass Times in Tonetown	21.	Beyond Zork	32.
Portal	30.	Hitchhiker's Guide to The Galaxy	18.
Artworx Bridge 5.0	22.	Zork Trilogy	44.
Avalon Hill Mac Pro Football	29.	**Microsoft** Flight Simulator 1.02	32.
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or Scrabble	28.	MacGolf 2.0 or MacRacquetball	36.
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A Candide Interview

by Michael D. Wesley

Tucked away in an obscure corner of the old Four Phase building, now part of the Apple campus/complex, is a small office that houses the little-known Bureau of Macintosh Standards. I found it by accident as I wandered the corridors looking for hints of new Macintosh products. The room was almost completely hidden by stacks and stacks of boxes that said Lisa on the side, but I could just see a bit of light so I went to investigate. There was the office, the door slightly ajar, so I knocked lightly and entered, as any good journalist would do. The room's occupant appeared to be somewhat taken aback that I came in so casually. He seemed a bit unaccustomed to having visitors.

"Hello," he said, after a few moments of fluster and bluster, "and who might you be?"

"Mike Wesley," I said with conviction, "a columnist for *MacUser* magazine." This was a piece of information best kept hidden at times, but I decided to play it straight and forthright in this instance, on the off chance that such a novel approach might work. "And you are...(pregnant pause)...?"

"Dr. Pangloss, of course. I am in charge of Macintosh Standards." He offered me a hand and asked me to sit on any pile of boxes that looked suitable. He took a seat behind an enormous old desk that was covered with newspapers, magazines and other odds and ends.

"I believe my people set up an appointment for me to interview you," I lied, "at..." I looked at my watch — 2:49 — "2:45. Sorry I'm a few minutes late."

"That's quite all right," Dr. Pangloss said, "I wasn't aware of any interviews today, but as you're here and I'm here it must of course have been planned this way." He looked disoriented for a moment, then said "You know I've never been interviewed before, that I recall."

I looked around the office, which seemed almost too cluttered to be habitable. On the walls were several advertising posters for Macintosh, including all the old classics ("Test Drive a Macintosh," for example) and one or two that I had never seen before. One in particular that caught my eye was a lovely watercolor with the slogan "Macintosh — Best of All Possible Computers." Dr. Pangloss saw me glance at it and said "Designed that campaign myself, but it never got off the ground. Pity."

"Dr. Pangloss," I said, "what exactly did you mean when you said you were in charge of Macintosh standards?"

Dr. Pangloss sat up slightly and said in a very self-important manner "I am in charge of maintaining the standards of operation and design explained so perfectly in *Inside Macintosh*. It is up to me to see that Apple and third-party products conform to the Macintosh way of doing things. You see we must remain consistent, because it is the ease of use and understanding that sets Macintosh apart and makes it uniquely — well, Macintosh!" I thought about this for a moment, unable to believe my good fortune at stumbling across this office. I pulled out my omnipresent journalist's notepad and pen. "Do you actually set the standards?" I asked.

"No, that's done by the people who create the hardware and software that combine to form a Macintosh. I'm just an overseer, if you will. In fact I know nothing whatsoever about Macintosh hardware or software, except of course that I know the standards."

"Isn't that somewhat odd," I asked, "shouldn't your job be handled by someone with considerable expertise?"

"Oh, indeed not young man," he responded. "It's imperative that the 'keeper of the interface,' as I am sometimes called, be totally objective and without bias. If I knew anything at all about computers I couldn't possibly be objective."

"Dr. Pangloss, as important as standards are, don't you think that they can be confining? I mean, isn't there a trade-off between consistency and innovation? If everything has to remain somewhat constant, doesn't that preclude the wild kind of innovation that led to Macintosh in the first place?"

"Nonsense," he responded. "If we let every developer have his own way, we'd be just like all the other computers. We must maintain the standards."

"But what about Apple programs, which consistently break the rules and have to be rewritten to accommodate changes in the System software?"

" 'A foolish consistency is the hobgoblin of little minds'," said Dr. Pangloss with a fist pounding. "Emerson!"

Intrigued, I pressed on. "And what do you think of *HyperCard,* Dr. Pangloss?"

Dr. Pangloss' face filled with a radiant smile, as if he had just seen the messiah. "Wonderful," he said, "*HyperCard* is the best of all possible computer programs."

"Does it bother you at all that *HyperCard* itself, and *HyperCard* stacks, don't have to follow the standard interface?" (I asked anyway, even if the answer was predictable.)

"Of course not," said Dr. Pangloss. "*HyperCard* is the best of all possible programs, and therefore must be the standard. Nothing less would do for the best of all possible computers."

"What happens to the original Macintosh ideal of a computer that is not only easy to use but also affordable so almost everyone can have access to it? I mean, *MultiFinder* is great, and *HyperCard* is great, but it won't be long before a *basic* Macintosh requires a minimum of 2 megabytes of memory and a hard disk as standard equipment."

"Well," said Dr. Pangloss, "we must have been meant to have memory upgrades and large hard disks or Apple and third parties would not supply these products."

I was running out of time so I asked one last question. "If I understand it cor-

rectly, the 'standards' you maintain actually change and grow according to Apple's plan, some details of which may have been kept secret from 'the rest of us,' including other developers?"

"Quite so. The best of all possible plans unfolds in its own way and in its own time. And I am the one who must see that we all follow it to the letter."

"Well, Dr. Pangloss," I said on my way out, "thank you very much for your time. It has been a revelation."

"Oh, before you leave young man, what do you think should be standard

A foolish consistency is the hobgoblin of little minds'," said Dr. Pangloss.

that may not be on the list yet?" Dr. Pangloss asked.

Without having to think about it, I said "Every software program should have a good, clear, thorough, well-planned, well-written manual." And I left, with Dr. Pangloss muttering "What a novel idea!" behind me.
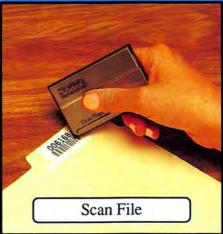
LEARNING REVOLUTION REVISITED

I meant it when I said in a previous column that I planned to be a crusader to get Macintosh into grade schools. (Clever segue, eh?) I've gotten a bigger response to the first Mac-for-kids column I did than anything else I've written for *MacUser.* Apparently, I'm not alone in thinking that Macintosh should be the computer of choice at all levels of education, not just advanced high school and college. There was an interesting cover line on a national magazine last month; interesting, at least in the sense that I really couldn't believe it. Educators across the country are *still* asking the question "Should there be a computer in every classroom?" These people have completely missed the point of personal computers. The answer is unequivocally NO. There should, instead, be a Macintosh ON EVERY DESK, and teachers in every classroom who know what to do with them.

But let's face it. Aside from the fact that most teachers are afraid to bring technology into the classroom, and costs prohibit such an option, the establishment (god, did I just age myself the way I think I did?) can't afford to let it happen. Just think what an entire generation of educated, intelligent and well-prepared young people could do to this country? Why, they might even be smart enough to make drastic changes in the system!

One last point, then I'll end the diatribe. Why is it that we reserve the best technology, best people and best ideas for business, and stick our education system with the leftovers? Oops, I think I already answered that in the previous paragraph. ▨
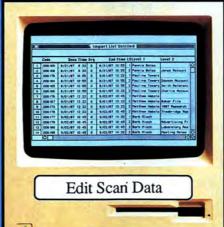
Macintosh II

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The power to be your best.™

by Doug Clapp

The Most Beautiful Stacks

Firrst we had ugly computers. Then came Macintosh, the first computer that wasn't ugly. But it was the computer that made "ugly documents" possible. With Macintosh you can make ugly documents, ugly graphs and ugly desktop presentations. And now: ugly stacks. It's the curse of power. Sturgeon's law says "90 percent of everything is garbage."

But that's okay. If we were perfect, we wouldn't be here. And the inverse of "If it was easy, everybody'd do it," must be "It's easy! Let's do it!"

With *HyperCard*, it is easy. And everybody, it seems, is doing it. But wait! Before you reach for that modem, stop. Before you drop your latest stack into your user group's public domain hopper, pause.

Don't be hasty. Don't foist yet another confusing, ill-conceived stack onto a public thirsting for the new, the unusual, or even a couple of clever buttons. Do us all a favor and follow these simple (in the best Macintosh tradition) guidelines:

1. *Don't protect your stack.*

Information defies entropy. You can spread it around, pass it out, and it doesn't get smaller. Amazing. Keep it in mind: don't protect your stack. Bread on the waters works. If you truly need to

protect your stack, maybe you should reconsider your market.

2. *Don't change the userlevel.*

Unless you're targeting your efforts solely at the naive user, don't change the userlevel. Don't deny users the chance to customize your stack to their needs. It's better to encourage users to make a copy of the stack, then customize away. Changing the userlevel, like protecting your stack, is arrogant. Don't be arrogant.

3. *Put in a map card.*

Of course your stack makes sense to you — you created it. But the new user doesn't have the slightest idea of what's inside. Put in a map card. If it's a big stack, consider an index and table of contents. Go back to the *HyperCard Help* stacks for a new appreciation of good organization.

4. *Follow the conventions.*

Don't be tricky. The beauty of Macintosh is that you can usually figure out how something works. That's only true because hundreds of developers have — on the whole — followed a shopping list of conventions. You now have the same responsibility. Ask yourself: "How would I guess this worked, if I didn't know how it worked?" The answer is: The way similar things work in other stacks. For example, if something works like a button, make it a button. Not a radio button or a checkbox; a button. If the differences between buttons and radio buttons and checkboxes aren't clear, pick up a copy of *Inside Macintosh*. The section on user interface goes into adequate detail.

5. *Check Auto-Hilite.*

A basic convention. When a user does something, the computer should do something. The feedback should be as

immediate as possible. Hence Auto-Hilite.

6. *Don't hide.*

A user should never need to COMMAND-OPTION. If it's not clear which areas are "alive" and which aren't, you haven't done a good job. If your aunt in Tucson can't figure out what to click where, other folks will also have a tough time.

Clapp's HyperRules
1. Don't protect your stack.
2. Don't change the user level.
3. Put in a map card.
4. Follow the conventions.
5. Check Auto-Hilite.
6. Don't hide.
7. Think first, code later.
8. Anticipate the user.
9. Don't clutter.
10. Document, document.
11. Details.
12. Get the bugs out.
13. Compact before uploading.
14. Don't charge.
15. Make us happy.

7. *Think first, code later.*

It's fun to code, it's hard to think. But think first. Make a list. Use paper. Write down exactly what the stack will do. Is there one "big idea?" Or is it a collection? What is it? Try to keep your focus narrow; don't throw everything in just because — for once — you can.

Don't code yet. First, decide what particular buttons, fields and functions you'll need. Make another list. Write down what goes on what card. If you can, rough out the code for any tricky buttons or handlers. Finally, when you know what you want, and how everything will work, code.

8. *Anticipate the user.*

Never assume anything. Imagine the most naive user. What will they do when they first open your stack? Muck around, probably. Let 'em. Keep your organization clear and make your program actions "bulletproof." Don't enforce a rigid sequence of actions. Make the most likely action the "right action." Remember, you've worked on this a long time; other people will come to it "cold."

9. *Don't clutter.*

Simplify, simplify, simplify. If Strunk and White's dictum was "Omit needless words," yours should be "Omit needless buttons." And needless cards and pictures and fields and text. Clutter is confusing. Simplicity is simple and serene.

Writers and other creative types learn to "kill their children." In other words,

you may like it (you may love it), but if it doesn't serve a clear and absolutely necessary role, cut it. And remember that white space isn't just empty space. It's vital. It's soothing. It's as real as anything else. Use it and respect its power.

10. *Document, document.*

Use dialog balloons to reveal explanations and help. And document any scripts. In fact, try to over-document. You won't, but try.

11. *Details.*

It's the little things. Check your stack, then check it again for stray pixels, typos, misspellings and glitches. Just because *HyperCard* is easy doesn't mean you don't need to be careful — full of care. If you care, it shows.

12. *Get the bugs out.*

Are all the bugs out? Really? Really? What about "range bugs?" If you can enter values, what if the values are extremely high? Or low? Could a user enter anything incorrectly? If they can, make sure they can't. Test and test and test. Give your stack to your friends. Offer $25 for each verifiable bug. Put your money where your stack is.

13. *Compact before uploading.*

If you upload your stack to a bulletin board, compact it first. Don't make us pay for downloading dangling nothingness.

If your aunt in Tucson can't figure out what to click where, other folks will also have a tough time.

14. *Don't charge.*

If your stack is truly valuable, become a bona fide publisher, or find a publisher to market your product. If it's good, if it has value, you'll find a publisher. If not, it shouldn't be shareware! (You might consider Heizer Software; they have an up-and-coming stackware selection. You won't make a million, but you might surprise yourself.)

Public domain software is a great idea. Commercial software is an okay idea. Shareware is a lousy idea. Freely give, or charge what it's worth and shoulder the responsibility to support your product.

15. *Make us happy.*

Be wise and do good. Make us wise, make us good, make us happy. That's enough. 🄼

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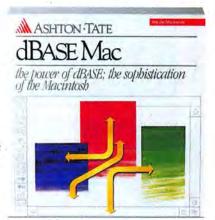
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ASHTON·TATE®

by Dan Cochran

Answers From the Mac Team

Got a Mac problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of Mac-User, Suite 250, 110 Marsh Drive, Foster City, CA 94404. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries.

SND'S AND HYPERCARD

Q. I have both *SoundCap* and *Sound-Wave* from Impulse and their sound digitizer. I also have *ResEdit* 1.1d4. I know how to create digitized sounds using this hardware and software. My question is this: How can I turn a digitized sound that I have created into a resource that I can put into a *Hyper-Card* stack?
DAVID WATSON
MONTGOMERY, AL

A. *If you have a modem and a CompuServe account, browse through the HyperCard Data Library in MAUG's MacPro forum (it was DL8 at press time; if you can't find it, a LN command should provide a list that includes it). At my last count there were at least five HyperCard stacks that will translate SoundCap digitized sounds into HyperCard-compatible resources.*

You could also order the "HyperCard Technical Reference Package" from APDA (#KMBHTL). It includes a SoundCap Mover stack that will accomplish the same thing. SoundCap Mover, as well as the stacks on CompuServe all call a HyperCard XCMD that strips the Sound-Cap header and replaces it with the header expected by HyperCard. The APDA product also contains the C source code for the conversion XCMD.

Both non-HyperCard snd (Format 1)

and HyperCard-*compatible snd resources (Format 2) are documented in the draft version of* Inside Macintosh, Volume V, *also available from APDA. Documentation for Format 2 snd resources is not in earlier versions of* Inside Macintosh.

You can check to see if a snd resource is Format 1 or 2 by using ResEdit *to look at the first word of the resource ($0001 = Format 1, $0002 = Format 2). All snd resources that come with the new Multi-Finder System software are Format 1. And future versions of the Sound Manager will somehow manage to mitigate this format differentiation.*

HP LASERJET
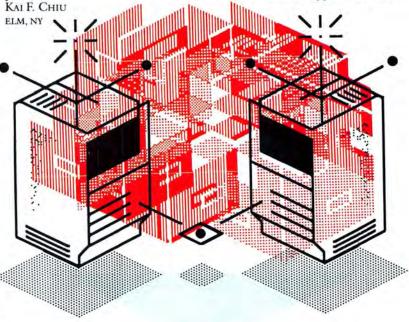
Q. I hope you can help me. I've been getting the runaround and paper promises. Is there anything out there that can link up my Macintosh II to my HP LaserJet Printer? What happens if I simply hook up the cables without the necessary software? All I want to print is simple text.
KAI F. CHIU
ELM, NY

A. *You can obtain the necessary software drivers to hook up your Laser-Jet and Macintosh II in either of the following packages:*
ProPrint, *by Creighton Development*
16 Hughes St.
Irvine, CA 92718
(714) 472-0488
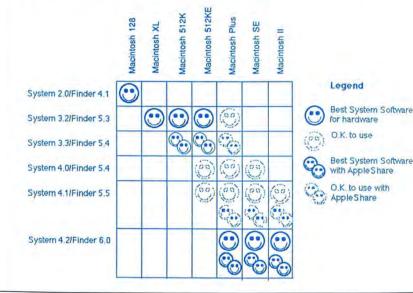
LaserJet, *by Softstyle*
7192 Kalanianaole Highway, No.205
Honolulu, HI 96825
(808) 396-6368

As you know, the HP LaserJet is a non-PostScript printer but will understand and print ASCII characters. As such, one might expect that with a proper cable, a user could get by with the standard Image-Writer driver by printing in draft-mode only. Macintosh draft-mode printing does send ASCII characters for text but the ImageWriter driver uses special micro-stepping instructions for ImageWriter paper-positioning and line feeds, even in draft mode. The LaserJet wouldn't know what to do with these stepping instructions. You'll need one of the special drivers mentioned above, not only to properly handle line feeds, but to take advantage of other LaserJet features such as font selection.

RESOURCE OVERRIDES

Q. I own a Macintosh 512K and a Macintosh SE. When I booted a disk on my SE which I had created on my 512K I got an unpleasant surprise. The disk contained its own complete System folder and an application that I have been working with for a long time. I had used *FONTastic* to customize some of the characters in the fonts that are required for *System* use (Geneva, Monaco and Chicago). It worked fine on the 512K.

When the application opened on the SE I found my custom characters were replaced by the normal characters for those fonts. I rechecked my on-disk fonts and found that they still contained my custom characters. Where did the normal font characters come from? I can only assume from ROM.

THE INFAMOUS CHART 2

Whenever Apple releases a new System and Finder they also prepare a chart showing which versions of the System and Finder should be used with their various supported hardware configurations. The word "supported" is important; Apple no longer supports all hardware configurations. Here is the chart that covers the recent System Software Update 5.0. There is no Chart 1.

	Macintosh 128	Macintosh XL	Macintosh 512K	Macintosh 512KE	Macintosh Plus	Macintosh SE	Macintosh II
System 2.0/Finder 4.1	☺						
System 3.2/Finder 5.3		☺	☺	☺	☺		
System 3.3/Finder 5.4				☺	☺	☺	
System 4.0/Finder 5.4					☺	☺	
System 4.1/Finder 5.5					☺	☺	☺
System 4.2/Finder 6.0					☺	☺	☺

Legend

☺ Best System Software for hardware

☺ O.K. to use

☺ Best System Software with AppleShare

☺ O.K. to use with AppleShare

I have three questions:

1. Are these "Required for System Use" fonts in ROM? If so, what other fonts does ROM contain?

2. Is there any way to have my on-disk fonts automatically used instead of the ROM fonts when I boot my special disk?

3. If these fonts are in ROM, how do I get them out of my on-disk *System* font file where they only waste disk space?

I would hate to think that the quadrupled ROM on the SE (256K now, 64K then) is used to make the machine more restrictive and less user definable and versatile.

DENNIS J. ANDERSON
TOMS RIVER, NJ

A. *Here's the situation: 1. The old 64K ROMs only contained Chicago 12. The newer 128K ROMs on the Macintosh Plus and the 256K ROMs on the Macintosh SE and the Macintosh II contain Chicago 12, Monaco 9, Geneva 9 and Geneva 12. In addition, the Macintosh II ROMs contain an expanded multiple-bit version of Chicago 12 to improve speed in 4-, 16- and 256-color modes. The ROM-resident FONT resources are over-*

DEFORMED.

I f these fonts are in ROM, how do I get them out of my on-disk System font file where they only waste disk space?

riding your System FONT resources.

2. Yes, there is a way to override ROM-based resources, but you should only do so if it's absolutely necessary and you understand the situation completely. The *Resource Manager chapter in* Inside Macintosh, Volume IV, *explains how to override ROM resources but leaves out a few details that I'll attempt to fill in.*

When you start up your System, or whenever InitResource is called, a ROM resource map is rebuilt. The Resource Manager checks the System Resource file for a ROvr resource with an ID=0 (this

resource is already contained in the latest SE and Macintosh II System files). The ROvr ID=0 resource gets loaded, executes and looks back to the System Resource file for all resources of type ROv# whose version word matches the version word of the ROM currently in use. The version IDs of 117, 376 and 630 correspond to the MacPlus 128K ROM, the Macintosh II 256K ROM and the Macintosh SE 256K ROM, respectively.

You can use ResEdit (versions 1.0 and greater contain ROv# templates) to add the appropriate ROv# resource to override a ROM-based font and substitute it with your own custom disk-based font.

Open up your System file using ResEdit and select and open the ROv# resource types. You'll find three predefined sets of ROv# resources which correspond to the three version numbers described above. Since you wish to override an SE ROM-based font resource, select and open ROv# resource type 630. A ResEdit *template will* present the ROv# resource format. Click on the first vertical line of asterisks which separate the version number and resource count fields from the resource types and IDs. The asterisks will highlight and you

can then select NEW from ResEdit's File menu. Do this for as many font resources as you wish to override. Now it's simply a matter of filling in the template blanks with the appropriate resource types and IDs. For instance, if you wanted to override the ROM-based Chicago 12, you would fill in the template's resource type field with FONT and fill in the corresponding resource ID field with 12. You can ascertain the correct resource ID for each font by using ResEdit to look at all FONT resource types in your System *resource file.*

One last word of caution. I might be superstitious, but I never feel quite comfortable using ResEdit under Multi-Finder. I prefer to hold down the Command key, and boot up into the standard Finder *before* ResEdit *sessions. By the time* you read this we'll probably have a Multi-Finder-friendly version of ResEdit.

3. It can get pretty tricky trying to use-Font/DA Mover or even ResEdit to discard disk-based versions of ROM-based fonts, especially when they have the same name and resource ID. The ROM-based fonts are not present in the latest and greatest Macintosh SE and Macintosh II System file (at the time of this writing,

Version 4.2). If you use System 4.2 as the starting point for all of your disk-based system files you won't have to worry about ROM/disk font redundancy.

EXTENDED KEYBOARD

Q. I bought a Macintosh SE recently. When I did, I got the Apple Extended Keyboard. When I got everything unpacked, I found no documentation at all for the extended keyboard. What can I do with my extended keyboard and is there any documentation available?
SCOTT J. WILSON

A. We developed the Apple Extended Keyboard for those users who: 1) intend to use their Macintosh II or Macintosh SE with an MS-DOS coprocessor card and require function-key compatibility with existing MS-DOS applications; 2) prefer the option of being able to assign function keys to commonly used mouse, menu or multiple-keystroke operations; or 3) simply like the feel, power and flexibility of a larger keyboard.

For those users in the first category, the Apple Extended Keyboard function keys will automatically map to MS-DOS applications that already require or expect function key input.

By the time you read this, Apple should have released their previously announced Keyboard Macro *program, which will allow a user to assign either a single or complex series of input events to a specific function key. This program will be available from dealers, electronic services and usergroups and will eventually be rolled into the next System Software Update product.*

Other options include Tempo *from Affinity Software and* QuickKeys *from CE Software. Both of these products allow you to customize your Extended Keyboard to suit your own preferences and define function key sequences for specific applications only or globally for all applications.*

Other commonly asked answers about the Extended Keyboard:

1. Function Keys F1 through F4 are labeled, respectively, Undo, Cut, Copy and Paste. These are not predefined values so don't be too surprised if they don't work as you'd expect. We are, however, encouraging application developers to adapt this standard as well as to utilize the remaining function keys whenever appropriate.

2. The Caps Lock LED is operative in the

Macintosh environment. The Num Lock and Scroll Lock are only operative in the MS-DOS/Coprocessor card environment. Future Macintosh applications will, however, be able to utilize them.

MFS/HFS PROBLEMS

Q. I am writing for your help in dealing with a problem I've run into with *Word*. I have a Macintosh Plus with a 20-megabyte Apple hard disk. When I try to save a document I have created with *Word* using either the SAVE command or by clicking on the document's Close Box, I am unable to access any of the folders I use to store these documents. Instead, I get a listing of all the individual documents on the hard disk.

If I use the same Microsoft program by booting it into the Macintosh with the hard disk turned off, I do not have any of these problems.
RICHARD J. SAGALL
BANGOR, ME

A. From your description of the problem, it sounds like you have old MFS System software installed on your hard disk (most likely a System 2.0 and

BETTMAN ARCHIVE

HELP YOUR DESIGNERS ESCAPE FROM THE PEN.

Waiting for a pen plotter to finish its job is nothing short of cruel and unusual punishment.

So if your plotter has you doing time, we suggest the JDL 850 GL+ printer/plotter.

It'll handle any chore a pen plotter would. With one arresting difference: you can now get 2-D or 3-D color hard copy—on A to C-size media—up to five times faster.

Which means with the 850 GL+, you'll zip through intricate design drawings, architectural renderings, and job-specific CAD applications at breakneck speed. All with the compatibility of the HP-GL command set and a variety of H-P plotter configurations.

One more liberating thought: the 850 GL+ costs about half the price of an equivalent pen plotter. All of which means the choice is really simple. You can opt for the pen and face countless hours at hard labor.

Or you can spring an early release with the 850 GL+.

JDL
Japan Digital Laboratory

WEST: (805) 495-3451   EAST: (704) 541-6352   2649 Townsgate Road, Suite 600, Westlake Village, CA 91361
Nationwide service by (BRUNING) HP-GL is a trademark of Hewlett-Packard Corporation

Please circle 48 on reader service card.

Finder *4.1 combination). Prior to the release of* System *3.2/Finder 5.3, file folders were nothing more than a visual illusion to assist users in organizing their disk volumes.*

The old MFS file system software knew nothing about folders, only files. This explains why your standard file dialog only presents you with a list of the individual files on the disk. It also underscores the importance of keeping current with the latest releases of System *software.*

You should obtain a copy of the latest System Software Update *(Version 5.0) from your local Apple dealer. The price is $49 and well worth it, considering the documentation and utilities that are included. Because you will be installing the new HFS file system over an old MFS volume, you should first carefully back up all of the documents, applications, and data files that you wish to save onto disks. With your hard disk powered on, boot up from the* Macintosh System Tools Disk *that comes with the 5.0 update. Select the hard disk icon on the desktop and choose* ERASE DISK *from the* Finder's Special *menu.*

Then follow the new System *software installation instructions in the 5.0 Update*

manual. *Finally reload your backed-up files onto your hard disk (don't drag the old MFS folders to your hard disk — just the files). You can now create new "real" folders on your hard disk and organize your documents within these folders.*

MIDI CONNECTOR

Q. I recently purchased a Macintosh SE, mainly for musical applications. Unfortunately, neither my dealer nor even Apple itself have any clear idea as to which MIDI interface I need. I am looking for the hardware, not the software. Can you help?
DAVID HARRISON
ANCHORAGE, AK

A. *At the January Macworld Expo in San Francisco, Apple announced an Apple MIDI Interface adaptor for all Macintosh and Apple IIGS computers. The Apple MIDI Interface is an Apple-Talk-sized external connector that hooks up to your Macintosh or IIGS via the standard serial ports. The adaptor is compatible with all existing MIDI Macintosh software and most existing Apple IIGS software (Apple IIGS software designed*

for use with a MIDI interface card instead of the serial port will require modification).

Features include one MIDI IN and one MIDI OUT connection and an opto-isolated MIDI IN input to eliminate ground loops and other noise. All necessary cables are included for Macintosh II, SE, Plus and Apple IIGS machines. If you have an older Macintosh 128K or 512K machine with the DB-9 serial ports you'll have to purchase an adaptor cable (Apple Part Number M0196). No power supply is required. Your local Apple dealer should have had them in stock by the end of January and the suggested retail price is approximately $100 to $125.

RTFM

Q. Two weeks after purchasing a new Macintosh Plus, I encountered a small glitch and wondered if you had also seen it and could provide me with some guidance. After the *System* is on and the desktop in place, moving the mouse while depressing its button produces an open box which disappears when the button is released. The manner in which the box is formed is identical to that used for creating boxes in graphic

applications such as *MacPaint* and *Mac-Draw*. The production of this box outline occurs only between commands while the mouse is dragged with the button depressed. There appears to be no effect on System applications or program execution. Restarting the *System* with different disks, including the hard disk, and disconnecting it from power along with battery removal has had no effect in correcting this problem. I would appreciate any assistance you can provide.

BEN VINCENT
ATTLEBORO, MA

A. *Before you completely disassemble your Macintosh may I refer you to pages 33 to 35 of your Macintosh Plus Owner's manual. The phenomenon you describe is simply a selection box (just like the selection box in* MacDraw) *that allows you to select more than one icon at a time. If you position the cursor outside one corner of a group of icons, and click and drag the mouse to the opposite corner, you'll notice that all of the icons within the selection box become highlighted or selected. At this point you can move them as a group into a folder, into the trash, onto another disk or to an-*

other place on the desktop. Don't fret. It's all part and parcel of the Macintosh user interface.

UPGRADE PATHS

Q. I own a Macintosh 512K and I am planning to buy an SE within the month. I thought that instead of just doubling my RAM, why not go all out and get 2 or 4 megabytes installed? (I'd like to keep the SE's expansion slot open.) My Apple dealer told me that Apple does not offer this option. He said the Mac is designed for optimum performance at 1 megabyte of RAM, and that any more memory seriously impairs the software and hardware workings. He also noted that memory expansions are not treated by the computer as free memory, but as large RAMdisks. The salesman then proceeded to tell me some horror stories of people he knew who took the expansion route. They had to modify up their motherboard, and in the process, void the warranty. Then, with the job completed, the expansion did not work as expected (i.e., just a large RAMdisk).

Please end my confusion Why doesn't Apple offer this option? Does the expan-

sion work as free memory (I don't want a RAMdisk)? Are the chips user installable (I'm an electronics engineer)? Is it worth the money?

JAY GOODMAN
KISSIMMEE, FL

A. *If your dealer is talking about up-grading your 512K to 2/4 mega-bytes with third-party upgrade kits he's partially right. Third-party RAM up-grades for 128Ks, 512Ks and 512KEs have often been nightmares. In this day and age the only proper upgrade path for a 128K, 512K or 512KE machine is a complete Macintosh Plus upgrade. This involves a swap of the motherboard, and is only available from Apple. You'll then be able to easily install up to four 1-megabyte SIMM chips to bring your newly upgraded Macintosh Plus to a total of 4 megabytes of memory.*

Apple actually does offer SIMM chip upgrades in 2- and 4-megabyte increments. There are also SIMM-based RAM upgrade kits available from third-parties such as Dove. SIMM installation is a simple process that requires no tools other than the special tools required to open up your

TWO WAYS TO MAKE WORKS

From Lundeen & Associates

Macintosh. And all the RAM is true RAM, although the user can, of course, decide to set aside some of it for a RAMdisk.

If, however, your dealer is telling you that your SE can't be upgraded beyond 1 megabyte, he has at least one oar out of the water. To say that the Macintosh SE is designed for optimum performance at 1-megabyte is easily one of the most ridiculous statements I've ever heard. Like the Macintosh Plus, the SE can easily be expanded, via SIMM upgrades, to 4 megabytes. And with the new MultiFinder System software, that extra memory really comes in handy.

My recommendation to you? Buy your SE with 1 megabyte of memory, sell your Macintosh 512K in the paper, and use the revenues to help finance a 2- or 4-megabyte upgrade. And, yes, if you buy third-party SIMMs, you'll be able to easily install them yourself. If you buy Apple SIMMs, your dealer will install them as part of the package.

MULTIPLE BINS

Q. I want to set up a small law firm with a network of SEs. The problem is printing, or more specifically, how to get the three types of paper we routinely use into a printer.

How do you produce a two-page letter where the first page goes on engraved letterhead and the second page goes on blank letter-size bond paper and then print out a pleading on legal-size paper using a Macintosh? We previously used Sony word processors with a Sony printer and a two-bin sheet feeder. Bin one held letterhead while bin two held legal-size blank bond which was cut off with a paper cutter when used for the second page of a letter.

Even a system such as that would be OK, but everyone says we can't even get that far with a laser printer. We have been told that we would have to manually change the paper tray to change size. This won't work with our volume.

KENNETH J. SMITH
MIAMI, FL

A. A company called BDT manufactures a multiple-bin feeder for the Apple LaserWriter. The BDT LaserFeeder bin provides two additional paper bins and one envelope bin to its host printer. BDT provides a special LaserWriter driver that allows the user to specify the desired bin, or to request that the first page of a document be printed from one bin, and that subsequent pages be printed from another. You can contact BDT in Herkimer, New York at (315) 866-1244.

You might also consider an Image-Writer LQ from Apple. The ImageWriter LQ is a 27-pin wide-carriage dot-matrix printer that can produce black-and-white or color output in three different levels of print quality. The three printer qualities are draft (ASCII), near letter quality (72 X 72 dpi), and letter quality (216 X 216 dpi).

Optional accessories include a sheet feeder (which can have up to three paper bins) and the AppleTalk card which allows the ImageWriter LQ to serve a workstation group.

If sheet feeder bins are installed, you can also select the bin for the first page of a document and the bin for the remaining pages. However, those applications that treat each page as a separate document (Word, for example) will not be able to take advantage of this feature, since each page will be seen as "Page" of a new document.

ike Microsoft Works.

from one to another. And later combine work done in each part of the program on a single printed page.

This easy exchange of data makes jobs go faster and much, much easier. (Like form letters where you need to combine names from the database with a memo
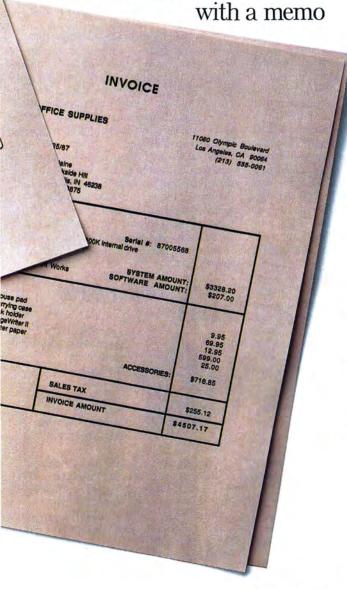
written in the word processor.)

Learning Microsoft Works is a snap. It starts with a painless, step-by-step, computer-based training program. Before you know it, you know it.

All in all, Microsoft Works is a superb solution for day to day, get-it-done problems—an inspiring display of convenience, efficiency, and utility.

And of course, it's a product of Microsoft, the preeminent developer of programs for the Macintosh.™

If you're in a business that won't let you stick to one thing, check out Microsoft Works—the program that can change jobs as fast as you do.

Microsoft® Works.
For everyone.

QUICK CLICKS

Quick Clicks are short reviews of released products, not beta release, pre-release products or vaporware. If it appears here, it is available commercially. Products reviewed here will often be the subject of a longer review in a future issue.

DeskPaint ♣♣♣½
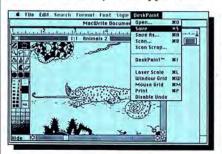
List Price: $59.95. Published by Zedcor, 4500 E. Speedway, Suite 22, Tucson, AZ 85712-5305. (602) 881-8101. Not copy protected.

Headlines are in place; text is neatly formatted into columns. All that remains is to paste in that graphic you created last week. Of course, this is when you remember that you wanted to fix some detail in your art. If you use your Mac for those tasks popularly known as desktop publishing, this has probably happened to you.

You could Quit and return to your Paint application to make the correction. Or, you could slide over to the Apple menu and call up *DeskPaint*, a desk accessory that gives you much of the power of a second generation Paint program from within a page layout program or, for that matter, any other application.

DeskPaint can also be used as a stand-alone Paint program. In fact, it can be launched as such by copying the *Desk-Paint* icon onto disks that have the DA installed. Used in this manner, it manages memory more efficiently and permits you to work on larger files. However, I wouldn't be inclined to trade in my copy of *GraphicWorks* 1.1 or *SuperPaint* just yet.

Most Mac users will be familiar with the tools on *DeskPaint*'s palette. There you specify the size and shape of the brush, line and eraser. But be careful with

eraser sizes. In magnification mode the tool's active area can be significantly larger than it looks on the screen. *Desk-Paint* warns you by adding little arrows to the tool but gives no indication of the extent of the possible damage. One errant mouse click can wipe out the detail you were trying to fix.

Line, brush and fill patterns are also chosen directly from the palette. There are 38 patterns always visible, and you can page through five sets. A pattern table is provided for mixing your own.

Whenever a selection is made with either the Lasso or Rectangle, the context-sensitive palette displays image manipulation tools. Selections may be inverted, flipped vertically or horizontally and rotated 90 degrees or in increments of 1.41 degrees. Mouse and keyboard combinations will increase the speed of free rotations. Selections can also be scaled freehand, proportionally or in downward (50 percent) or upward (200 percent) jumps. The LaserScale menu selection permits re-sizing while retaining resolution for LaserWriter printing.

In addition to the standard opaque graphics, *DeskPaint* supports transparent, BIC (Black is Clear) and XOR (reverses pixels beneath black pixels) modes. And it also has a Screening feature which, using patterns, lets you darken or lighten all or part of an image. However, it's mostly useful on complete images. When sections are selected, even with the Lasso, an entire selection rectangle is screened-in.

A Zoom tool steps you to 16:1 magnification or 1:16 reduction for FatBits and full-page views. A Hide button toggles the palette on or off the screen.

Finally, *DeskPaint* can import and export files in *MacPaint* or TIFF format and incorporates a browsing function which lets you page through clip art.

With all these features *DeskPaint* can be quite a useful DA. And, for the most part, it works pretty well. But, unfortunately, it is not without its little idiosyncrasies.

DeskPaint has a habit of blinking

whenever you change tools or when it redraws the screen as you complete a function. This is especially noticeable when the window grid is turned on. Then, every mouse click, whether a painting action or palette selection, causes the entire grid to blink. And when selections are moved, it flashes repeatedly. I confess to finding this characteristic annoying. Others might find it intolerable.

Also, that Window Grid is interesting. Unlike most, it is superimposed atop the image. So, if you erase a section of your drawing, that portion of the Grid disappears, to be restored when the action is completed. And the manual (nicely illustrated with digitized Durers and Raphaels) could be a bit better organized and less visually cluttered.

Of themselves, these annoyances are not totally damning, but they do drag down the program's rating. Although it does not stand up to dedicated Paint programs, *DeskPaint*'s many tools and features do make it more than adequate for those occasional cleanup jobs from within other applications. — *Carlos Domingo Martinez*
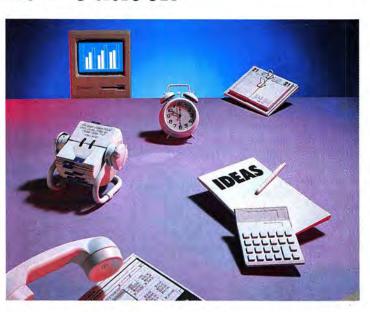
JASMINE DIRECT DRIVE
♣♣♣♣♣

List Price: $1159 (cash), $1193 (Visa/MasterCard). Manufactured by Jasmine Technologies, 555 De Haro Street, San Francisco, CA 94107. (415) 621-4339.

Jasmine Technologies has earned a reputation for producing good, fast, inexpensive hard drives. Their Direct Drive 50 does nothing to contradict that. For performance, features and value, it would be virtually impossible to beat the Direct Drive 50, and anyone shopping for a large-capacity hard drive, or anyone who has become enamored of *Hyper-*

QUICK CLICKS

Card, would do well to give this Jasmine serious consideration.

Like its big brother, the Direct Drive 80, which Robert Wiggins recently selected as a "Pinstripe Pick" (October '87), the Direct Drive 50 is a very quiet, 1:1 interleave hard drive that, in performance, is the equal of the fastest SCSI drives available. Speed, of course, is important, but the noise factor shouldn't be overlooked. The same drive that seems perfectly acceptable at the office, or in the store, may, upon being brought home, suddenly make your desk sound as if it's in the flight path of O'Hare International. Fortunately, the Jasmine engineers have kept the Direct Drive 50's noise output to the barest minimum. In fact, if it were not for the fan's soft whir, you wouldn't be able to tell the drive was on at all. The only noticeable sound is heard when the Direct Drive is reading and writing, but these clicks provide reassurance that everything is running smoothly. This is important, because the Jasmine's operating light is located behind the unit's air filter, and unless your room is fairly dim, it's unlikely you'll be able to see it.

The Direct Drive 50 comes preformatted, and can be set up in a matter of minutes — whether you read the manual or not. For those who do read manuals, the Jasmine's is excellent: well-organized and clearly written. As a bonus, the last chapter is a reprint of a useful article by Steve Costa from the "Late 1986" BMUG newsletter on file and disk recovery.

Jasmine also provides a set of utilities that includes the *HDBackup* program. Unfortunately, this is the same program Apple ships with its *System* software, and it's so painfully slow that it makes regular backing up as exciting a prospect as root canal work. You'd be much better off with a commercial product like Super-Mac's *DiskFit* — especially once you start filling up the 50 megs.

When it comes to additional features, the Jasmine is loaded. Physically, the drive is a conveniently small 10 X 10 X 2½ inches that fits neatly under a standard Mac. The rear panel includes two surge-protected, switched AC outlets, and a push-button SCSI address select switch that sets the SCSI address without software. And as with the Direct Drive 80, the heads park automatically when the unit is turned off.

The Direct Drive 50 also comes with over 9 megs of public domain and shareware software installed. This cornucopia is both a blessing and a curse, since the process of sorting through the folders and finding out what is useful and what isn't can be extremely time-consuming. For those tackling the task, two pieces of advice: First, have at least 15 blank disks on hand so you can back everything up before you get started — just in case you throw away something you find you need later, and second, buy *Suitcase,* as you're sure to find lots of fonts and useful DAs you'll want to install.

At less than 25 dollars per megabyte, the Direct Drive 50 is an outstanding value. It comes with a 1-year warranty on materials and workmanship, and a 30-day, money-back trial period. Considering everything it has to offer, the Direct Drive 50 deserves to be put at the top of every hard drive shopper's list. — *RI*

MACTABLE ♦♦♦♦½

List price: $269 for the table; $129 for cabinet. Manufactured by ScanCoFurn, PO Box 3217, Redmond, WA 98073-3217. (206) 722-6263.

The elegance of the Mac calls out for an elegant worktable. The MacTable is exactly that. It's 30 inches deep by 60 inches wide. It can be configured to hold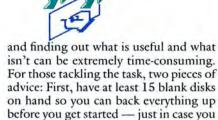 any Mac and is beautiful as well as functional. The basic desk consists of two beech endframes and four light gray or black plastic laminate on particleboard adjustable top surfaces. These surfaces can be angled or left flat.

Here's an example of how the table could be used with an SE and Image-Writer II. The 60-inch wide surface should be at the front and flat. The medium-sized surface (of the three remaining) should also be flat. The wider of the remaining pieces should be slightly angled up (you'll put the printer there and the angle will make the output easier to see). Finally the small, 12-inch wide panel (for the SE) should be put in the middle of the back and angled down. This tilts the Mac away from you and while it sounds strange (and looks strange at first), it's a very good position for the Mac. It makes for a very comfortable and efficient working position. Other equally good configurations for other hardware configurations are suggested in the instructions.

The optional cabinet is worth purchasing. It's surprisingly deep (30 inches) and is big enough and strong enough to function as a stand for any printer (including the 70 pound LaserWriter). The

QUICK CLICKS

cabinet has two good-sized open storage areas (although access to the rear one often requires moving the cabinet) and a large, shallow drawer. The drawer has a built-in divider to delimit an area for storing disks. This area also has a wooden keeper to keep the disks upright, but it never really works. Actually the whole drawer is excellent for disk storage. That's particularly true since it can be locked (the side-mounted plunger lock is included).

Both units are imported from Denmark and have the excellent quality characteristic of fine Danish furniture. Everything comes disassembled, allowing for UPS delivery.

Set aside a few hours for assembly. There's nothing particularly difficult, at least if you have a power screwdriver or an electric drill and screwdriver bits. The instructions are adequate, but could be more complete. For example, I struggled for a while with the small Phillips head screws used to attach the top panels to the center bar before realizing that while they looked like 0 or 1 screws they were really No. 2 screws. I wish the instructions had mentioned that. If you have to drive all the screws by hand you're in for a long afternoon (or morning or evening). Beg or borrow the necessary power tools. The cabinet is much easier (and quicker) to assemble. Overall, assembly isn't difficult, but it isn't something I'd care to do regularly.

After seeing and working with a Mac-Table, I bought one for my workspace at home. I don't think there's a higher recommendation. — *SB*
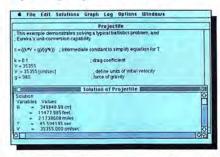
EUREKA: THE SOLVER ♦♦♦

List Price: $195.00.
Published by Borland
International, 4585
Scotts Valley Drive,
Scotts Valley, CA
95066. (408) 438-
8400. Version 1.0
reviewed. Not copy
protected.

When *TK!Solver* was removed from the Macintosh software market, the market was left with a gap. Spreadsheets, programming languages and statistics programs could grind through calculations when the user had already worked out a path to the solution. *Stella* and *Stella for Business* didn't require a solution path because they applied their own path: a simple forward march to update variables. For some problems, this worked splendidly. But for many, it was inade-

quate, so we were left without a mass-market product to digest and solve almost any equation set. Borland saw this product opportunity and responded by developing *Eureka: The Solver*, a free-form numerical equation solver.

Eureka is useful for anyone who doesn't just add up columns of numbers and prepare profit and loss statements. It does much more than just compute cell values from formulas. First you give *Eureka* the governing equations for the model, up to a maximum of 20 equations, and define any functions or unit conversions you'll need, up to ten of each. You can also enter initial guesses and constraints to speed things up and to prevent a search from starting in an undesired area. Then tell *Eureka* to search for a solution or display an error message explaining why it can't find one.

Standard trigonometric and logarithmic functions are available, as is treatment of imaginary and complex numbers. Time value of money, numerical integration and differentiation and normal probability distribution calculations are supported as well. Error functions, Bessel functions and other esoteric functions used in science and engineering are not supported, and no interface is provided to expand the functions available by linking compiled subroutines. Hopefully a future upgrade will include this capability because it will greatly increase the number of problems that can be solved. In the meantime, if you can find a series expansion to approximate the desired function, the SUM function might give a reasonable approximation. Compound functions (like x = 1 if y is positive and x = -1 if y is negative) are not supported at all.

If you ask it to, *Eureka* can search for maximum or minimum values of a variable. Many real-world problems — like maximizing profit with respect to widget selling price, or like finding the best number of lathes versus drill presses to buy under a fixed budget — don't have a direct algebraic solution. Either they require examining many possibilities and choosing the best or they require know-

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Every DataFrame includes utility software worth over $500.

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Networks need fast storage, so users don't have to wait. And they need easy backup, for disaster prevention.

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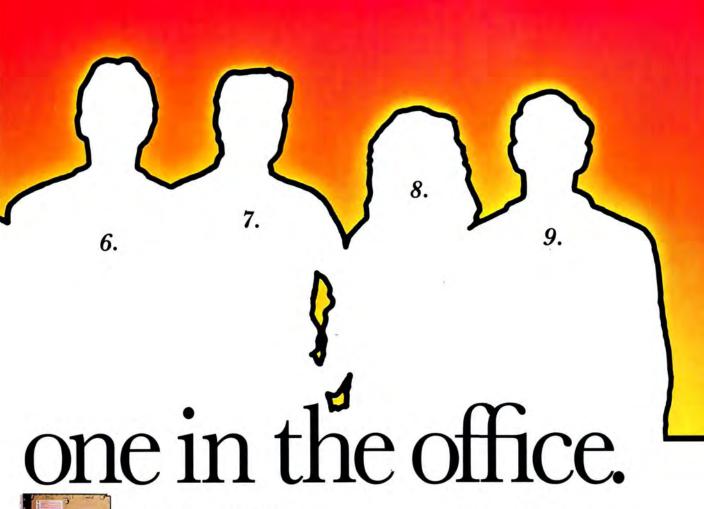
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Users with big data applications like desktop publishing or databases *love* this combination hard disk and removable Bernoulli® cartridge. 20 Mb removable Bernoulli cartridges make backup and archival storage fast and easy. And what a system: 60 + 20 means 80 Mb on line, with infinite storage on the shelf.

one in the office.

5. The Intensive Mac II User: DataFrame XP 150i Internal Drive.
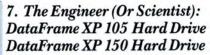
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QUICK CLICKS

ing how fast values change with respect to other values. With an equation solver, they become easy. Rather than setting up a spreadsheet and comparing many repetitive "what if" analyses (where you'll never be sure you couldn't do just a little bit better), use *Eureka* and find the best conditions directly.

While numbers are the goal of math models, often they aren't useful by themselves. So *Eureka* lets you go further. You can generate a graph of any two variables against one another and zoom in and out to change the graph scale. Or you can produce lists of any variable versus another to print out or to import into a spreadsheet for further analysis. Verifying that the solution really satisfies the model is easy, as is search for multiple solutions. To protect your work as you change a model, you can produce a log of any work you do so you can refer to it later, or store a *MacWrite*-compatible report of the equations used and the solutions and graphs created. Borland also outlines a method you can use to create equation files from *Turbo Pascal* (or from a spreadsheet), but it will rarely save time over typing the problem into *Eureka* from the start.

If you have a 68881 coprocessor (standard on a Mac II, and available on other Macs through third-party accelerator boards), you'll gain increased performance (in some cases up to 50 times faster) by using a special version of *Eureka* included on the standard product disk. Problems involving complicated models, misbehaved functions and high required degrees of accuracy will benefit the most. Even without a coprocessor and operating on a 512K Mac, however, *Eureka* isn't a slouch. Its algorithms are built to run efficiently. Choosing intelligent first guesses and setting reasonable accuracy limits are the easiest ways to get speedy answers.

Learning to use *Eureka* takes a little time. Typing in equations and getting answers is easy enough, though the error messages can be obscure. On-screen help is available, but it's too brief to be useful. The manual provides a good introduction to the product. It includes 21 examples from chemistry, finance, physics and game theory that point out important features. The program disk includes all the examples from the manual and 11 additional worked problems. If you become an advanced user and start pushing the limits, you'll probably find the manual lacking. Understandably, the manual is meant to discuss the *Eureka* interface and not to provide a course in linear programming or problem solving, so con-

sider getting a good textbook in the area of your model to read along with the manual. The three-mouse rating is mostly the result of two things: First, the list price is too high for a program like this. Many programs graph better, and most people who buy it won't use more than 10 percent of its power. Second, it needs an interface (like *HyperCard* and *4th Dimension*) that allows linked external subroutines. And it doesn't support enough kinds of functions; and can't be programmed to support more right now. — *Linda Custer*

QUARTERSTAFF ♦♦♦♦

List Price: $49.95. Published by Simulated Environment Systems, 800 South Pacific Coast Highway, Suite 8-311, Redondo Beach, CA 90277. (213) 379-6742. Requires Mac Plus. Version 1.2c reviewed. Not copy protected.

Computer adventure games have been around almost as long as computers. But long-time fantasy role-playing (FRP) gamers often complain that electronic simulations lack the feel of a pen, paper and dice game. The characters don't seem as real and there's no continuity from game to game. Simulated Environment Systems does something about that with *Quarterstaff*.

A lot of the attraction of FRPs is developing characters. Some people play the same alter ego for years. Not only does *Quarterstaff* have well-developed characters, there is potential to carry those same characters along with their possessions to another SES adventure. *Quarterstaff* is the first installment and is a good beginning.

The story line is an inventive variation on the "good versus evil" themes that dominate this genre. It seems the local

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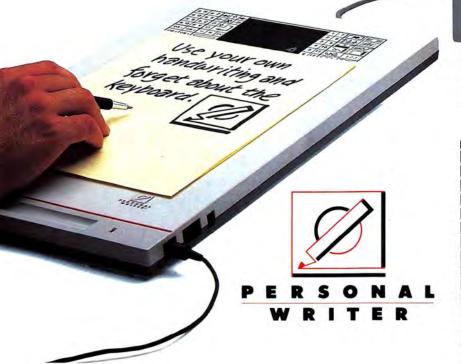
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QUICK CLICKS

Druids, well-known for their good works and love of nature, have disappeared. You, as the mind behind three daring adventurers, are out to solve the mystery. By delving deep into the Druids cavern, you'll discover "majic" items and creatures, each of which may help or harm you. You'll also soon discover something very unDruid-like: a dungeon complete with a temple dedicated to a rather nasty-looking demon. A series of poems that you discover along the way helps you unravel the mystery and find a way out of the dilemma.

The actual play is a mix of text and graphics in the form of a round-by-round conflict that should be familiar to veteran FRP gamers. The reality of this fantasy is high. You'll have to endure seemingly endless rounds of seeking clues, weapons and extra food and torches just to keep you going. At some point, of course, you'll also have to sleep.

The way to victory is not without hazard, but this sense of danger is part of what we pay for. Actually, it's not as easy to die in *Quarterstaff* as it is in other computer adventure games. You are often at risk, but if the danger is too great you can usually run away. Also the puzzles you have to solve are not as close-ended as other computer games. There are usually several solutions to a problem. You can bully your way through the dungeon by hacking and slashing or take a smarter and less time-consuming approach by looking for clues.

Quarterstaff's flexible input lets you respond however you like — with either the mouse or the keyboard. Most of the verbs (such as North, South, Look, and so on) that are accessed through the menu also have a Command key equivalent. *Quarterstaff* lets you define macros for commands you think you'll be using frequently. For instance, instead of typing in "Attack Gelatinous Cube with Mace of Destruction" for each melee round, you just define those words as COMMAND-1. It makes combat move much faster. Up to ten keys can be customized as macros.

The on-screen map (a nice feature in itself) is "hot" — you can move around by pointing and clicking to where you want to go. There are also commands to TILE OR LAYER windows to help organize the clutter. If you have *MacInTalk*, *Quarterstaff* makes use of it, and will also provide sounds, such as doors creaking or wind blowing, which are, as often as not, warnings of impending doom.

Simulated Environment Systems has created a good shell with *Quarterstaff* to which modules can be added. Current

plans call for a town module that will serve as a hub around which other adventures will take place. This means you can develop the characters you've used in *Quarterstaff*, keeping all of their inventory and experience and send them off to do battle in other milieus.

Quarterstaff closely approximates what it's like to play a non-computer fantasy role-playing game, but it won't appeal to everyone. Like most adventure games, *Quarterstaff* takes a long time to play to completion and play can often be monotonous. Simulated Environment Systems estimates a 40- to 50-hour game for experienced players, and not a small amount of that is spent waiting for the disk drive to stop whirring.

For FRP freaks *Quarterstaff* is a must-have — a real winner. I'm anxious to see how this "world" evolves. But if you haven't played this type of game before you might want to try something a little lighter first before committing the time it takes to get through *Quarterstaff*. — BT

DISK TOOLS PLUS ♦♦♦♦♦

List price: $49.95.
Published by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171; (800) 245-4525; in CA, (800) 562-1112. Requires 512K + . Not copy protected. Version 1.0 reviewed.

Disk Tools Plus is a set of 8 extremely useful desk accessories and applications. They may look vaguely familiar to people who have had their Macs for a while — as well they should. This set of DAs was originally published by Batteries Included as the *Battery Pak*. It won high honors then from this magazine as well as others.

Batteries Included has since passed on, but these DAs have been picked up by Electronic Arts. More than picked up, in fact. They have all been reworked and improved. You can't get much more value for your dollar than *Disk Tools Plus* provides.

The shining star is *Disk Tools II*, a DA that offers you virtually all of the functionality of the *Finder* and then some. The program competes in a crowded market with both other DAs, such as *DiskTop*, and *Finder* alternatives like *PowerStation* and *Oasis*. It more than holds its own.

The interface is fairly cluttered, but totally intuitive. This is how icons are supposed to be used. One feature that is not immediately obvious is that almost all operations work on multiple files. That is, you can select, say, five files and a folder from the list, and then click on the Size icon to get the combined size. You can
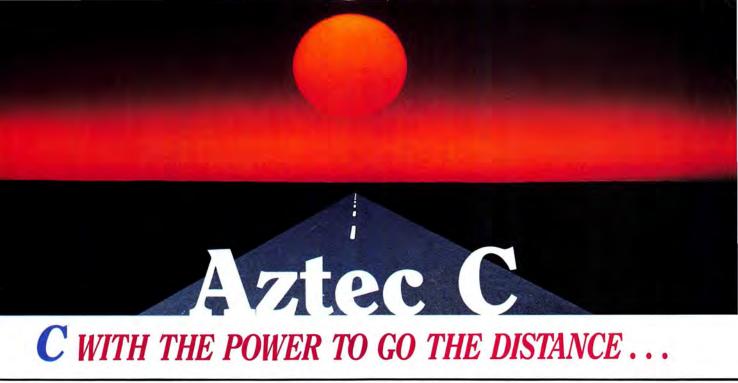

then click on the Move icon and move all the files (and the folder) together. That's enormously useful.

The Find function is the best in the business. You can rapidly and easily search on numerous criteria. This alone is worth the price. You can launch or Quick Launch (from a special window) both documents and applications. Other icons let you set the file attribute bits (obviating the need for a separate file editor), and copy and delete files. About all that's missing is the ability to print selected documents.

This is a versatile DA especially for hard disk users. Floppy users will have problems with the size. It takes up 92K, more than earlier *Finders*!

Also included are an excellent calendar (with the ability to store notes tied to particular days); an ImageWriter spooling DA that is merely fair (don't buy this package for the spooler); an RPN (if you need to ask what RPN stands for, ignore this one) calculator; a more-than-decent scientific calculator; and a windows DA that puts up a menu that lists yours windows and allows you to freely select which one should be active. There's also a replacement for the *Note Pad*. It's called *Phone Pad*, since you can have it dial the modem (or phone for you). It can have up to 250 pages and, fortunately, given how much you can put in it, excellent searching ability. To complete the package, the *Calendar Manager* application (the only part of the package that's not a DA) lets you print out several kinds of reports from your *Calendar* files.

This product is worth buying just to get *Disk Tools II*; when you consider all the other goodies, it's one of the best bargains in the software market. *SB*

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TIP SHEET

COMPILED BY H. D. PLANT

Found a trick, shortcut or a smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o *MacUser*, Suite 250, 110 Marsh Drive, Foster City, CA 94404. We pay at least $25 for every hint we publish, plus we'll print your name and hometown.

Every month we'll select one tip as the Tip of the Month. The person who sends in that tip will receive $100 for it.

FILEMAKER PLUS

Use caution when placing text into a field that's formatted for numeric values only. Here's an example of what can easily happen. If you're making out records for a library application and wish to make records for multiple copies of a single document, the following situation might arise. If you have a Master Copy as well as copies 1, 2, 3, 4, 5, 6 and 7 and enter these data into a numerical field on eight records and then sort by copy number in ascending order, the files are arranged as follows:

```
1
Master Copy
2
3
4
5
6
7
```

This rather strange result occurs because *Filemaker Plus* accepts both "Y" and "N" in numeric fields, evaluating them as 1 and 0, respectively. In our example, the sorting process sees the "y" in Master Copy and assigns a value of 1 to that field. And we get the results shown. You can safely use text in a numeric field only if you're careful to avoid all words that contain "y" or "n"!

MICHAEL J. MCLANE
GALES FERRY, CT

Data exported from *FileMaker Plus* to a spreadsheet (like *Excel*) is normally delimited by tabs separating data fields and carriage returns separating records. *Excel* can import such data into its row and column format very nicely. Unfortunately, though, the field names are not exported, and if there are a lot them, the required hand entry can be tedious.

Get around that problem by using the ability of *FileMaker Plus* to create a "merge" file. These files are primarily intended to be used with the mail merge functions of some word processors and other applications. The merge file is a text file with field values enclosed in quotes and separated by commas. The field names are exported as the first record. While *Excel* will not properly import comma-delimited fields, *Trapeze* will. Create a text block in *Trapeze* and import the merge file. If necessary, rearrange the worksheet, the text and numbers in the right types of blocks. If you still need to go to *Excel*, *Trapeze* can export tab-delimited and WKS files that can be read directly by *Excel*. Columns can be formatted as text or numbers, as desired. In both cases, though, the field names are preserved. You can also use most word processors to quickly search for and remove the quotes and also replace the commas with tabs.

JAMES MCALISTER
CONWAY, AR

Sometimes you need to the print the records in your data base starting in the middle (the printer may have jammed or run out of paper). The most direct way to do this is to just run the report again, and put the number of the first incomplete page in the Print From box in the Print dialog. However, sometimes you don't know the page to start on.

Another way to the same result is to use the OMIT RECORDS command to remove all the records that you have already printed from the current set of found records. To do this, use the book tool and its slider to move to the first record you want to print. Note its number and then use the slider to move to the first record in the data base. Choose OMIT RECORDS from the Edit menu, and when the dialog appears, subtract one from the record number of the first record you want to print, and enter that number in the dialog. This will omit (not delete) all records up to the one you want to start printing from. Now just choose PRINT.

This method should not be used if you're restarting a report that uses Grand Totals, as *FileMaker Plus* will exclude the omitted records from the totals. The technique is very useful for printing simple listings and labels. It's also a convenient way to print records in a sorted set starting from the middle (for example, you can print M to Z of a directory).

ANDY SHAW
SAN FRANCISCO, CA

One of the great features of *FileMaker Plus* is its VIEW AS LIST option. This allows you to enter and edit records in a spreadsheet-like scrollable list. One drawback is that the left side of the window contains the toolbox and record book, effectively narrowing the already limited size of the screen.

Get into the habit of automatically resizing the window to take full advantage of the screen. Grab the title bar and move the screen as far to the left as it will go. Then use the size box in the lower right corner to stretch the screen back to the right. If you need access to the toolbox or record (you won't for viewing and editing in the list), click in the zoom box in the upper right corner and the window will shrink back to its original size. Another click and it's back to full screen.

DOUG AITA
BOZEMAN, MT

MACMONEY

Although the manual doesn't tell you how to export report files to *Microsoft Works*, it can be done. The best results are achieved if the *MacMoney* report file is opened as an imported text file into the spreadsheet module of *Works*. From there you can easily transfer the data in the word processor and data base modules.

TIP OF THE MONTH

SYSTEM

If you have an SE or a II, pressing the "˜" key (usually called the tilde key, for the other symbol on it) will express you to the bottom of any file selection list box (such as that displayed when you chose Open). The Escape or esc key will take you immediately to the top.

BARRY J. SILVER
BETHLEHEM, PA

Importing the file directly into the word processor doesn't work well because you must preset all margins.
CHARLES CALDWELL
CORTEZ, CO

The first four reports on the Reports menu are standard reports for the current month. If you want to see one of them for a previous month, go to the *Control Panel* desk accessory and reset the month to the month whose reports you want to see. Then select the reports. Remember to change the date back when you're done.
CHARLES CALDWELL
CORTEZ, CO

OVERVUE

Suppose you have a column of book titles and the column has been given the Word Caps attribute. This can be a nuisance as even small words like a, an, the and of are capitalized. The best way to avoid having to do too many corrections is to type the titles without spaces before the short words. For example, *The Book of the Sea* should be typed as *The Bookofthe Sea*. It's then a simple matter to go back and add the spaces at the appropriate places.
BRUCE B. I. HOOVER
CHARLESTON, SC

WORD 3.0X

This tip is particularly useful if you're using the desktop publishing features of *Word*. The program works out a "normal" spacing between letters based on the type of font and its size. But normal spacing is not optimal in all situations. For example, some overhead transparencies are created and printed on the LaserWriter using 14-point Times, all in capital letters (all capitals almost always causes spacing problems between letters). When printed out the first time, with lots of white space on the page, the individ-

ual letters are too close together to look good.

To fix that situation, select the offending text, choose CHARACTER on the Format menu, and then select EXPANDED when presented with a list of choices for character spacing. The program suggests an expansion amount in the By box. You can override this by typing in any value from .25 point to a maximum of 14 points (a bit more than 1/6 inch; 72 points = 1 inch). In the example here, *Word* suggested 3 points, but 1.5 points looked much better.
MARIA DEMARCO
GLOUCESTER, ONTARIO

Word's BORDER command lets you use a box or lines to highlight a paragraph. However, borders can only be applied to a single paragraph. Here's how to put a border around a group of paragraphs:

1. Type all the text that is to be included inside the borders.

2. Format the text as you want it to appear. To add white space above, below and between the paragraphs, use blank lines. To add white space to the left and right, increase the margins.

3. Select all the text — including any blank lines at the

top and bottom — and type COMMAND-OPTION-D to copy the selection to the Clipboard as a graphic.

4. Paste the graphic into your document, select it and give it the border you want.

There is a limit to how much text *Word* will convert to a graphic — the limit seems to be about 30 lines of 12-point text. And since you can't edit inside the graphic, save your original text until you're sure you no longer want to make changes.
RICHARD P. SCHWARZ
MINNEAPOLIS, MN

When creating a form, don't use a series of typed underline characters to create a fill-in line. While some fonts will show a solid line on the screen, the printed results will often be uneven, or worse, have gaps. The trick is to set Underline as a style and then type blanks. If you press the Command key while typing the blanks, you create "hard" spaces, which the program will keep on the same line.
TOM ROCKLIN
IOWA CITY, IA
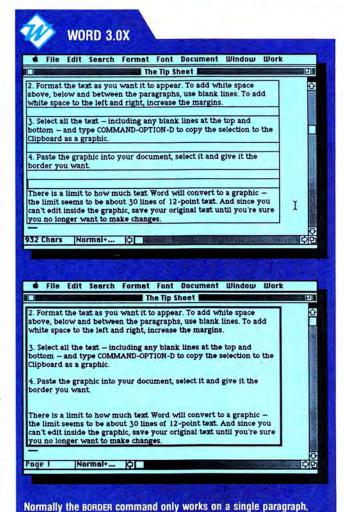
SYSTEM

If for some reason you want two files to appear to have the same name, use an ellipsis (Option-semicolon will give you an ellipsis) in one and three periods in a row in the other. If you look very closely you'll see that the three periods are a tiny bit wider on screen than the ellipsis, but at a glance they look the same.
ANTHONY R. CURTIS
WALKERSVILLE, MD

MULTIFINDER

If you don't want to scroll to the bottom of the Apple menu to see what applications have been launched, hold down the Option key while selecting the menu. The DAs are not listed and you have easy access to the applications list. Another, neater solution is

Normally the BORDER command only works on a single paragraph, leading to unsightly results. Get the results you want by by formatting your text as you want it and then copy everything to the Clipboard as a graphic (COMMAND-OPTION-D). Finally, paste it back and put the border on.

How to account for everybody.

to obtain *MF Menu 1.1* (or later). This little public domain INIT should be put into your System folder and the Mac restarted. After it's installed all you have to do is click on the icon at the right side of the menu bar to get a menu of open applications.
FRANK BENJAMIN
ENCINITAS, CA

Some desk accessories, such as version 1.1 of the *Thunder* spelling checker, don't work with *MultiFinder*. Here's how to handle this situation: Once you're in the application you want to use the DA with, hold down the Option key when selecting the DA from the Apple menu. You can now use the DA with that application (and only that application). It has been "attached" to the application. Another DA that this trick works for is the macro DA *101 Keys* that comes with DataDesk's Mac 101 keyboard.
FRANK BENJAMIN
ENCINITAS, CA

EXCEL

While *Excel* has a square root function (SQRT), you're on your own as regards other roots. It will do logarithms, however. And to get the cube root of a number, take the log of it, divide by 3, and then raise 10 to that power. 10 to the x power is the antilog. You can set this up as shown or use the following formula to do it in one step:

$$= 10^{\wedge}(\text{LOG10}(x)/y)$$

where x is the cell reference of the value you want to extract the root from and y is the root you want. Also shown is the formula in macro form.
ROBERT ROTH
KINSTON, NY

There is a more efficient method to creating scatter plots and charts in *Excel* than the one commonly used and described in the September "Help Folder." Just do the following:
1. Enter the paired data in columns, starting in row 2 (or lower).
2. Enter a heading in the row above the y-axis data.
3. Select the two columns of numbers, including the row above the data.
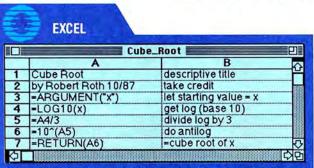4. Pull down the File menu, select NEW and then click on CHART.

A plot will be created with the heading on the y-axis data appearing as a title. This technique does not work if both columns have a heading above the data, if only the rows containing data are selected or if the row above the x-axis has a heading. In those circumstances, *Excel* behaves as if an imaginary category column exists and plots both columns of data against a category axis, even if Scatter plot is selected.
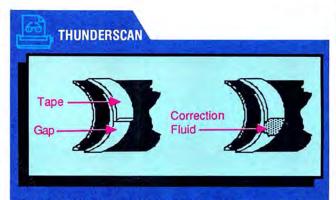R. K. SMELTZER
PRINCETON, NJ

THUNDERSCAN

If you sometimes have trouble with just a few lines of a

THUNDERSCAN

If the ends of the the white tape at the left side of the ImageWriter roller do not meet smoothly, the image quality can suffer. Fix the problem by carefully applying correction fluid to smooth the tape end area.

ThunderScan image, it may be because the scanner is having trouble with the end of the timing tape installed on the left end of the Image-Writer roller. The easiest way to see if this is your problem is to scan an image at least 3¼ inches long that contains a series of vertical lines. Watch the Image window closely as the end of the timing tape passes under the scanner. If you see part of the vertical lines displaced to the left, it is probably because the timing tape doesn't reflect light back to the scanner accurately and the scanner misses its timing for a line or two. The problem is more noticeable if you magnify the image being scanned. An easy way to fix the problem is to carefully apply some typewriter correction fluid even with the edge of the tape to fill the gap. If you accidentally get correction fluid on the rubber roller, it can be removed with isopropyl alcohol.
WILLIAM J. WHIPPLE
MADISON, WI

KEYBOARDS

Mac SE and II buyers actually have three keyboard choices from Apple. They are the Standard, Extended and IIGS keyboards. The IIGS keyboard has the same key arrangement as the Standard keyboard but is about 10 to 15 percent smaller. The feel of the keys is also slightly different, and the individual keys are relatively unsculpted and easier to rearrange (if, for example, you want to change it to a Dvorak layout). If your dealer doesn't know what you're talking about, refer to Apple part number 658-4081.
BARRY J. SILVER
BETHLEHEM, PA

MORE 1.1

When specifying underlined headlines using the standard *MORE* format, printing will underline the leading characters, like this:

Mission Statement
Objectives
Strategies
or
I. Mission Statement
II. Objectives
III. Strategies

To only underline the text and not the leading material, set the headline format not to underline at a given level and use the Character format to underline the text only. This provides better looking outlines for presentations and handouts.
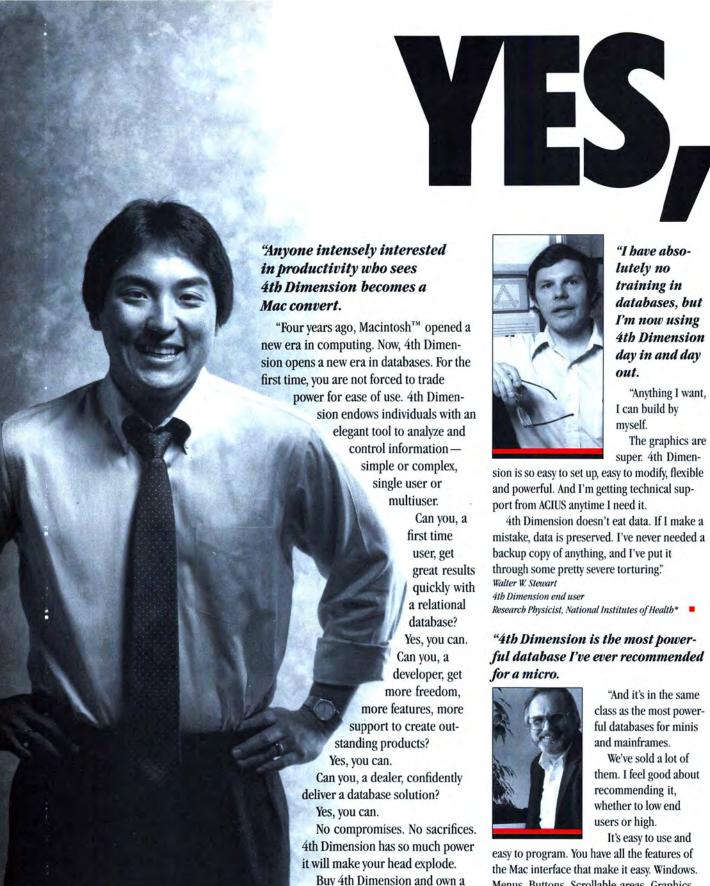
Mission Statement
Objectives
Strategies
or
I. Mission Statement
II. Objectives
III. Strategies

LAWRENCE A. ELLIS
CRYSTAL, MN

EXCEL

	A	B
	Cube_Root	
1	Cube Root	descriptive title
2	by Robert Roth 10/87	take credit
3	=ARGUMENT("x")	let starting value = x
4	=LOG10(x)	get log (base 10)
5	=A4/3	divide log by 3
6	=10^(A5)	do antilog
7	=RETURN(A6)	=cube root of x

This macro will compute all the cube roots you'll ever need.

YES,

YOU CAN.

In fact, I've become a developer myself. I wanted a point of sale application to run my business. I developed the system originally on a competitive product, but it didn't have the horsepower to solve the problems. 4th Dimension has the power to do anything I want to do.

I can offer no more sincere testimonial for the products I sell than to use them to manage my own business."
Dick Applebaum
Apple dealer and business co-owner
Computer Plus, Inc. ■

"When you sit down at a computer, there are two ways to go, IBM® or user friendly.

"In other words, what you see is what you're used to working with.

These are the reasons I like 4th Dimension: It's got the power to do everything I need in a com-
plex vertical market. It's got the interface to make that possible without taking on a second career. It's got layout graphics that can make your product look as good as it works.

You can sit down and use 4th Dimension without doing much to it, and you still have complete power. It has some dynamic, *dynamic* graphics. All this without programming. The others bog you down in housekeeping chores.

The custom mode enables me to use words, sentences, phrases, and icons that are familiar to my people in the real estate business. I have the ability to customize menus and menu items.

I enjoy working with 4th Dimension because of its power, interface, and the ability to create custom programs for my clients. I can't think of anything better than 4th Dimension as a development tool, and I've looked at them all."
Ted Bohrer
Developer
Concept 2001 ■

"The thing I like best about 4th Dimension is that it works the way I expect it to work.

"The whole screen interface is so much nicer than the others.

With dBASE,™ I spend a lot of time looking at the books and then creating screens. I never get it near right the first ten times.

I really like the way the subfiles work. I use that a lot because I maintain inventory sheets and I need to pull information from other places.

I like how it does everything automatically, like buttons, radio buttons, check boxes, and scrollable windows. You really don't need training to use these features."
Diana Foster
4th Dimension user
PC Coordinator ■

*The opinion expressed is not an endorsement by the National Institutes of Health nor the Federal Government.
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Want to try it out? Yes, you can!

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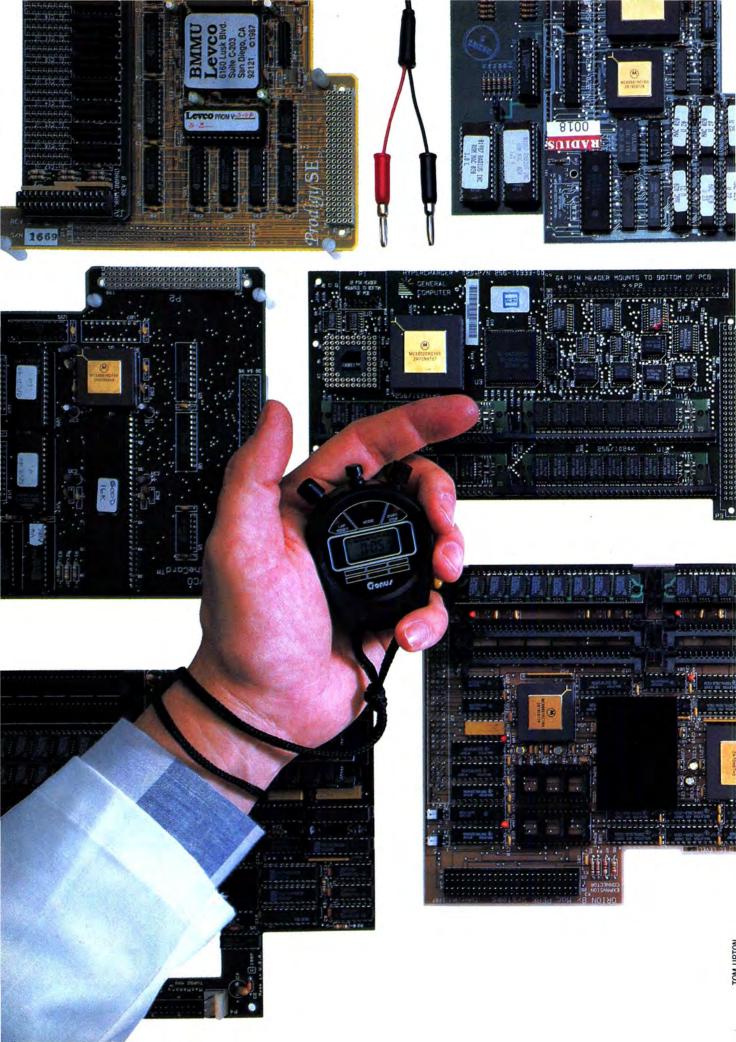
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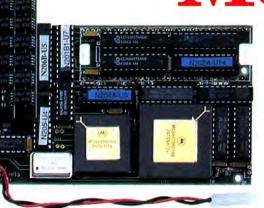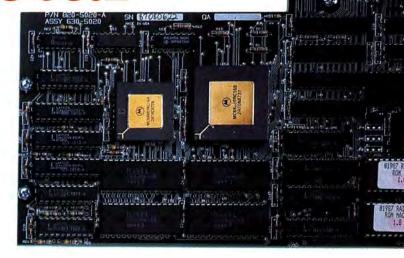
Please circle 76 on reader service card.

20300 Stevens Creek Blvd. Suite 495
Cupertino, CA 95014 (408) 252-4444

Pedal to the Metal

When there's a lot of data to be processed, speed counts. Here's how to bring your Plus or SE up to Mac II speeds (and even faster).

THIS IS THE FIRST *MACUSER LABS Report.* It will provide you with objective information, so that you can select and purchase the proper hardware and software for your situation.

MacUser Labs Reports are not reviews. We have removed all subjective opinion from them. The products covered here (and in all other *Reports*) have been subjected to intensive, well thought-out tests that you could duplicate — if you had the extensive (and expensive) equipment in the Labs. Many of the tests are simple enough for you to run yourselves. And within the standard margin of error, you'll get the same results.

If you want more information (such as users' opinions) about the products, you'll find it in the regular, "subjective" reviews in *MacUser.* Reviews of products covered in the *Labs Reports* may have already appeared or may be in upcoming issues.

BY CHIP CARMAN, JIM WHITE AND STEVEN BOBKER

Pedal to the Metal

The Labs will be reporting on both hardware and software. In this first *Report*, we've tested nine accelerator boards, add-in units that dramatically and significantly speed up the Mac 512KE, Plus or SE they're installed in. As you'll see, all worked, but they had an interesting mix of features and abilities. Some were easier to install than others; some had better software (or firmware). The price range is also wide. We didn't make any choices; that's up to you.

STEPPING ON IT

When the first Macintoshes were introduced they were hailed as a leap forward in terms of ease of computer use, but had a closed architecture (no expansion slots that could access the control, data and address buses) that made upgrading extremely difficult.

The early Macs were also criticized for their small screen, their lack of color and their seeming slow operation.

Apple soon introduced the Mac Plus which put to rest some of the power and speed complaints. Then the SE was introduced, offering even more speed and power.

The Plus was made more powerful by introducing new ROMs, doubling the memory (RAM) to 1 megabyte, and doubling the disk drive capacity to 800,000 bytes. The board was re-engineered to use single inline memory modules (SIMMs). This new type of memory module allows very easy and simple (snap-out, snap-in) memory hardware repairs and upgrades.

The Mac Plus board also included a SCSI (Small Computer System Interface) port which greatly increased the speed of data transfer to and from hard disks.

The Macintosh SE was the first computer in the Mac line to include an expansion slot. The first products to take advantage of this were the large-screen displays and accelerator boards that make the computer work harder and faster. Unlike most upgrades, which add something to use what's there, accelerator boards actually disable the original central processing unit (CPU) — Motorola 68000 — and include either a newer, faster, more capable CPU, the Mo-

torola 68020, or a faster version of the original 68000 CPU.
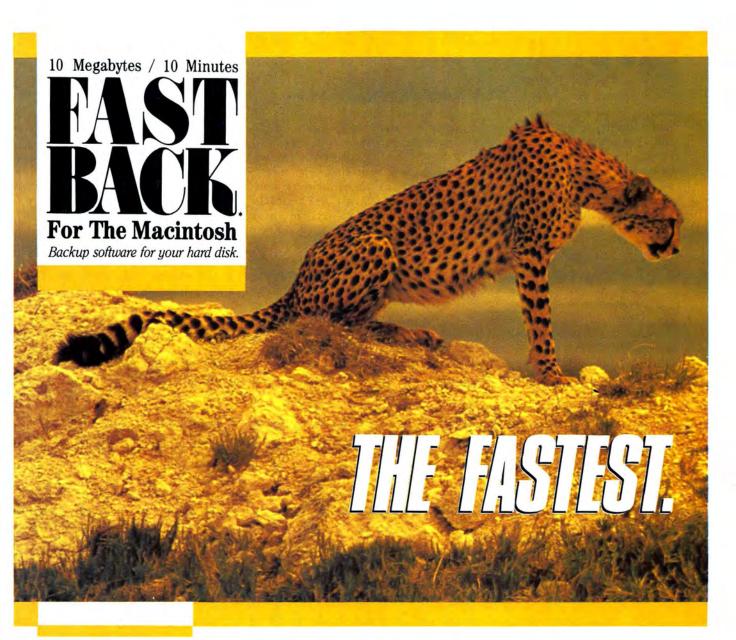
A CLEARER VIEW

To get a better idea of how and why an accelerator board works, we need to take a brief technical digression. If you look at a computer as a system of separate components, much like a stereo system, you can see that altering or changing one of the components doesn't necessarily affect the functional limitations of the other components. Sometimes it just masks them, making the limitations less visible or cumbersome. Real performance increases are elusive. We'll try to separate and define them. An accelerator board cannot speed up how fast the user works, how fast the disk drive works, how fast any external peripheral device works.

The time spent by the CPU waiting for any device or peripheral to accomplish a necessary task is called a wait state. Wait states are not caused exclusively by external devices. The CPU must also wait while

instructions and data are brought in from ROM and RAM, results are being calculated and so on. Consider this analogy: Every morning I drive to work. There are several signs and lights which tell me to stop, go, yield or merge. These are strategically located to try to maximize traffic flow while minimizing the likelihood of collisions or accidents.

If all roads and paths were designed as efficiently and effectively as possible, we would rarely have to come to a complete stop. This is true with computers as well. Traffic handling is central to the operating efficiency and speed of a computer system. And as a rule, the computer with the fewest wait states is the fastest computer.

When a computer is initially designed, the engineering team uses the best devices available to them at that time. The CPU used in the Macintosh — the 68000 — has a 16/32-bit data handling bus and a 24-bit address bus. It runs at just under 8 megahertz (MHz), and was designed as the first in a line of compatible/

A view of part of the Labs. Several different tests for several reports are being run on the machines shown here.

Pedal to the Metal

expandable microprocessors. It was designed to stand alone, with no provision for the intelligent transmission of information to another processor. This means there are no coprocessor chips available (such as the math coprocessors commonly used in IBM-type machines and with the Motorola 68020, which we'll discuss in a bit) for any 68000-based computer.

Hardware design is such a fast-paced, dynamic field that there is every likelihood that by the time a finished computer arrives on your dealer's shelf, a newer, faster and better design is already available. That has been the nature of microcomputer history, and there's no reason to think that anything is about to change.

That's what happened with the 68000. Soon after the Mac was released, a newer and faster chip was developed. This is the 68020 that is found in the Mac II and on many of the accelerator boards we looked at.

The Motorola 68020 actually has the virtual machine architecture presaged by the 68000. The features of the 68020 include a full 32-bit register, an on-chip instruction cache and the ability to look ahead and prefetch frequently used instructions, which can be stored in the instruction

cache. It can interface with other processors and has the ability to arbitrate where instructions and data on the system buses will go (for example, to a 68881 math coprocessor to support floating point math operations, or to a 68851 paged memory management unit (PMMU)). The 68020 also has a faster clock and can run at 12, 16, 20 or 25 MHz.

Innovations inside the 68020 allow it to accomplish more than one task at a time. This means that several instructions can be executed within a single clock cycle (pipelining). At the same time, the 68020 is object-code compatible with earlier members of the 68000 family (the 68000 and the 68010, which was never used in a Mac). That ensures a very high degree of compatibility with all properly programmed software. If software has been written following Apple's programming guidelines, it will run (with few exceptions) on accelerated Macintoshes as well as the Mac II.

GETTING DOWN TO CASES

When you need or want improved performance from your computer, the first place to turn is to the CPU — the engine, if you will. Increasing its power has the greatest impact on speeding up the computer. That

means either a faster 68000 or a 68020. And the only way to get that power, right now and short of getting a Mac II, is to add an accelerator board.

Let's go back to the driving to work analogy for a moment. When I arrive at the freeway onramp there are no longer the delays encountered on the streets and my car can speed along until I arrive at my exit. In a computer, the freeway is analogous to the address and data buses. The address and data buses transfer information in parallel, and so the wider the bus width, the more information can be transferred in a given time. Bus width is expressed in bits. Therefore, a 32-bit bus is twice as wide as a 16-bit bus, and can transmit twice as much information in the same amount of time.

Data transfer speed is a very important element in assessing a computer's overall speed. Another important aspect of computer speed is how fast events can occur. This is governed by the system clock of a computer. The clock speed of a computer is simply the speed at which the CPU can execute instructions.

Clock speed is expressed in two ways, in millions of cycles per second, or the inverse of that, in millionths of a second. The larger speeds

Hardware Features

	Installation	Computer	Clock Speed (MHz)	Mother-board Memory	Daughter-board Memory	Memory Usage Strategy	ROM Sockets	Peripheral Expansion Port	CPU Type	68881 Option (3)	68851 Option (4)	Wait States	Added Power Supply	Added Fan	Warranty	Price as Tested (9)
Mac Plus control	\\\\\\\	\\\\\\\	7.833	1M	\\\\\\	\\\\\\	\\\\\\	N	68000	N	N	1	\\\\\\	\\\\\\	\\\\\\	\\\\\\
Mac SE control	\\\\\\\	\\\\\\\	7.833	1M	\\\\\\	\\\\\\	\\\\\\	Y	68000	N	N	1	\\\\\\	\\\\\\	\\\\\\	\\\\\\
Mac20	U	512E,Plus,SE	7.833	1M	N/A	D	N	N	68020	Y	N	0	N	N	6 mo	595
Turbo Max	D	512E,Plus	15.667	1M	1.5M	B	N	Y	fast 68000 (2)	Y	N	1	Y	Y	1 yr	1499
Turbo SE	D/U	SE	15.667	64K	1M	A	Y	Y	fast 68000 (2)	Y	N	1 or 2 (5)	N	N	1 yr	599
Accelerator Plus	D	Plus	15.667	1M	N/A	C	N	Y	68020	Y	N	less than 1 (6)	N	Y	90 da	995
Mac II control	\\\\\\\	\\\\\\\	15.667	1M	\\\\\\	\\\\\\	\\\\\\	Y	68020	Y	Y	2	\\\\\\	\\\\\\	\\\\\\	\\\\\\
Hypercharger 020	D	SE	15.667	1M	1M	B	N	Y	68020	Y	N	1	N	N	90 da	1299
Orion SE Accelerator	D/U	SE	15.667	1M	1M	A	Y	Y	68000	Y	Y	2	N	N	1 yr	895
Accelerator SE	D	SE	15.667	1M	N/A	C	N	Y	68020	Y	N	less than 1 (6)	N	N	90 da	995
Mac20MX	U	512E,Plus,SE	variable (1)	1M	1M	B	N	N	68020	Y	N	0	Y	Y	6 mo	1295
Prodigy SE	D	SE	15.667	1M	1M	B	Y	Y	68020	Standard	Y	1	N	N	1 yr	1499 (10)

D = Dealer · U = User

A. Motherboard memory is moved to daughterboard. (You can purchase and install faster memory separately.)
B. Motherboard memory remains intact and the daughterboard is shipped with fast memory.
C. The accelerator board uses a fixed amount of very high speed cache memory.
D. No daughterboard or cache memory is used.

in whole numbers or smaller speeds in fractions of a second indicate the faster computers. A clock speed of 16 MHz is twice as fast as a clock speed of 8 MHz.

However, doubling the CPU's speed doesn't mean you'll be able to get twice as much data processing from your computer. There are many aspects of speed beyond the CPU's control. For example, disk drives can't read or write any faster than their design allows, and, if human input is required, a speed increase means you're going to have to learn to type faster.

SANE AND 68881

Understanding what an accelerator will *not* do can give you a more realistic idea of what to expect from one. Standard testing is based on three benchmark tests: the Dhrystone, the Whetstone and the Sieve. These tests yield results showing how fast the CPU can execute instructions and perform mathematical operations.

The most dramatic increase in speed is when the CPU and its math coprocessor chip are running in a floating point environment. Unfortunately, Apple does not support the floating point environment, but opts for its own SANE (Standard Ap-

ple Numeric Environment) for mathematical operations. This means that only intensive engineering applications or programs specifically written to take advantage of it can benefit from a math coprocessor. However, for them the speed increase is significant.

The Macintosh also handles mathematical operations in the integer format; this is what the SANE environment supports. The Sieve benchmark is the best test for a speed increase of integer math operations. These operations are not affected by the installation of a math coprocessor and yield a true measure of CPU performance increase. We have included the results of all three standard benchmarks to give you a clear picture of performance increase based on industry standards.

We've also done a series of controlled use tests, using some of the most popular programs. These tests provide a more realistic view of what you can expect an accelerator board to do for you.

THE BENCHMARKS

The 68881 math coprocessor is a companion chip to the 68020 CPU. They can communicate with each other via a set of embedded instructions in a way that is invisible to the

application data. The 68881 handles only floating point mathematical operations.

Since most Mac programs support only SANE and not the 68881 accelerator board manufacturers have had to create special "patches" (in firmware or software) that steer math operations to the 68881.

When programs perform tasks that require significant amounts of calculation, the speed improvement that results from properly using a 68881 is astonishing. Performance increases of an order of magnitude or more are not uncommon.

If your computer is primarily used for word processing, page layout, editing, and other input-bound and -intensive operations, not much speed will be gained by using a 68881. Of course, you'll benefit from the faster CPU, but the results will not be nearly as spectacular.

Most accelerator board manufacturers offer the 68881 as an added-cost option (it's not a cheap chip), and you should evaluate your situation carefully to see if it will be cost effective in your situation. We feel most users will not need it.

THE CONTROLLED USE TESTS

All the tested software ran with no

Software Features

		Features Control			8MHz 68000 Mode	68020 Instruction Cache On/Off	68020 AppleTalk Driver Patch	68020 Sound Driver Patch	SANE Calls to 68881 Co-processor	MacWrite 4.5 Trap (7)	RAM Configuring Software
	INIT File	Control Panel Access	Desk Accessory								
Mac Plus control	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\
Mac SE control	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\
Mac20	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turbo Max	N	N	N	N	N/A	N/A	N/A	Auto	N/A	Y
Turbo SE	Y	N	N	N	N/A	N/A	N/A	Y	N/A	N
Accelerator Plus	N	N	N	N	N	N	N	Auto	Auto	N
Mac II control	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\	\\\\\\
Hypercharger 020	Y	Y	N	N	Y	N	N	N	Y	Y
Orion SE Accelerator	Y	Y	Y	N	Y	N	N	Y	Y	N
Accelerator SE	N	Y	N	Y	Y	N	N	Auto	Auto	N
Mac20MX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Prodigy SE	N	Y	Y	Y (8)	Y	N	N	Y	N	N

1. Clock speed crystal from 16 to 32 MHz. Must be specified when ordering. The unit we tested had 16MHz clock.
2. The 68000 on Macs shipped from Apple run at 8MHz, a fast 68000 runs at 16MHz.
3. The 68881 is a floating point math co-processor chip.
4. The 68851 is a memory management unit chip (MMU).
5. Automatically configured on the card depending on the the memory speed.

6. 92% at 0 wait states, 8% at multiple wait states.
7. This patch is needed for MacWrite version 4.5 or earlier.
8. Via programmer's switch routine.
9. Accelerator board without 68881 and with 1M daughterboard RAM if available.
10. Includes math co-processor.

$3 does it all.

SOFTWARE

NCP denotes not copy-protected.
CP denotes copy-protected.

Aba Software ... NCP
"Draw it again Sam" (color & layers) .... $95.
Activision ... NCP
Postcards (clip-art, card stock) .... 20.
Business Class (atlas, req. Hypercard).... 30.
Focal Point (organizer, req. Hypercard) ... 64.
Aegis Development ... NCP
Doug Clapp's Word Tools .... 42.
Affinity Microsystems ... NCP
AffiniFile (DA filer) .... 49.
Tempo 1.2 (power user's macro utility) ... 53.
Tempo II (updated, auto installation)..... 89.
Allan Bonadio Associates ... NCP
Expressionist 1.1 (equation processor) ... 52.
ALSoft ... NCP
DiskExpress (maximize disk performance) 27.
Font/DA Juggler .... 27.
Altsys ... NCP
FONTastic Plus (advanced font editor) .... 48.
Fontographer (LaserWriter font editor) ... 239.
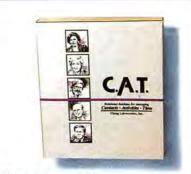
BrainPower ... NCP
MathView Professional–Superb mathematical and computation program. Handles linear and non-linear equations, 2 and 3 dimensional plotting, stats and series operations, etc. .... **$149.**

Ann Arbor ... NCP
FullPaint (advanced Paint program) ...... 49.
Ashton-Tate ... NCP
dBASE Mac 1.0 (relational, req. MacPlus) 295.
Batteries Included ... NCP
Thunder! 1.1 (spelling checker) .... 31.
Isgur Portfolio (portfolio management) .... 129.
Berkeley System Design ... NCP
Stepping Out (requires 512k) .... 55.
Blyth ... NCP
Omnis 3 Plus/Express (database) .... call
Omnis 3 Plus/Express (2-5 users) .... call
Omnis 3 Plus/Express (6-10 users)....... call
Bogas Productions ... NCP
Studio Session (music creation) .... 52.
Country or Heavy Metal Rock Disk....... 15.
Borland International ... NCP
Turbo Pascal Tutor .... 49.
Numerical Methods Toolbox .... 65.
Sidekick 2.0 (includes MacPlan) .... 65.
Turbo Pascal (HFS compatible) .... 65.
Eureka: The Solver................. 129.
Reflex Plus (info management tool) ..... 179.

Affinity Microsystems ... NCP
Tempo II–Record and playback simple or complex keystrokes and mouse movements. Free yourself from repetitive work and get back to creative work! Uses no DA slots. .... **$89.**

BrainPower ... NCP
Thinkfast (memory improvement)........ 23.
StatView (statistics package) .... 34.
Graphidex (DA graphics organizer) ..... 65.
DesignScope (electronic circuit design).. 128.
MathView Professional (num. analysis) ... 149.
StatView 512+ (req. external drive, 512k)... 178.
Bravo Technologies ... NCP
MacCalc (easy to use spreadsheet) .... 79.
Broderbund ... CP
Jam Session (create your own tunes) ..... 30.
Print Shop (create cards and memos) ..... 36.
Geometry (over 350 problems!) .... 60.
Physics (over 300 problems!) .... 60.
CAMDE ... NCP
Nutricalc (diet & nutrition analysis) .... 49.
Nutricalc Plus (full-featured program).... 175.
CasadyWare ... NCP
Fluent Fonts (two-disk set) .... 28.
Fluent Laser Fonts (Vols. 1-15)........ each 46.
CE Software ... NCP
Calendar Maker (create custom calendars) 32.
Disktop 3.0 (powerful DA Finder) .... 32.
QuicKeys (reduce mouse movements) .... 69.
Challenger Software ... NCP
Mac3D (3D graphics, CAD features) ..... 127.
Chang Labs ... NCP
Rags to Riches Ledger .... 120.
Rags to Riches Payables............. 120.
Rags to Riches Receivables........... 120.
Rags to Riches Three Pak............. 299.
C.A.T. (contacts, activities, time) .... 239.
Inventory Control or Professional Billing ... 239.
Professional Three-Pak .... 389.
Retail Business 3 Pak .... 389.
Cortland ... CP
TopDesk 2.3 (7 new desk accessories) .... 33.
Cricket Software ... NCP
Pict-O-Graph (color on the Mac II) ...... 105.
Cricket Graph (multiple windows)........ 119.
Cricket Draw (advanced draw capabilities) 169.
Data Tailor ... NCP
Trapeze 2.0 (spreadsheet, graphics & more) 205.
DataViz ... NCP
MacLink Plus (transfer Mac/IBM data) .... 149.
Davidson ... CP
Math Blaster! (grades 1-6).............. 27.

Deneba Software ... NCP
Merriam-Webster's Thesaurus .... $36.
Comment (electronic Post-It notes) ...... 59.
Canvas 1.0 (includes desk accessory) .... 119.
Dove Computer ... NCP
RAMSnap (RAM Disk/Disk Cache) .... 21.
Dow Jones ... CP
Market Manager Plus .... 159.
Dubl-Click Software ... NCP
Calculator Construction Set............. 37.
World-Class Fonts! (both volumes) ...... 45.
WetPaint Clip Art (both volumes) .... 45.
Electronic Arts ... CP
Disk Tools Plus (8 DAs plus tools)....... 33.
Deluxe Music Construction Set 2.0 ...... 62.
Enabling Technologies ... NCP
Easy3D (create solid 3D objects)........ 79.
Pro 3D (3D shaded modeling)........... 199.
Enzan-Hoshigumi USA ... NCP
Japanese Clip Art Scroll 1 "Heaven"...... 59.
Japanese Clip Art Scroll 2 "Earth"....... 59.
Japanese Clip Art "Borders" Scroll....... 69.
MacCalligraphy (create unique designs)... 115.
Fifth Generation Systems ... NCP
FastBack Mac (powerful backup utility) .... 59.
1st Byte ... CP
Mad Libs (w/synthesized speech) .... 14.
First Shapes (all about sizes & shapes) ... 32.
Kid Talk ("talking notebook") .... 32.
Math Talk (math learning tool) .... 32.
Math Talk Fractions (great homework helper) 32.
Smooth Talker (speech synthesis) .... 32.
Speller Bee (spelling learning tool)....... 32.
Forethought ... NCP
Factfinder 1.1 (information organizer) ..... 39.
FileMaker 1.0 (custom design reports)..... 49.
PowerPoint 1.0 (presentations)......... 189.
Foundation Publishing ... NCP
Comic People (create your own characters) 26.
Comic Strip Factory (create cartoons) ..... 45.
FWB Software ... NCP
Hard Disk Partition .... 37.
Hard Disk Util (program backup).......... 55.
Great Wave Software ... NCP
TimeMasters (learn about time, ages 4+) 22.
KidsTime (educational, ages 3-8) .... 27.
Crystal Paint (graphic symmetries)....... 32.
American Discovery (U.S. facts & fun) ..... 39.

Chang Labs ... NCP
C.A.T.–Powerful relational database for managing Contacts, Activities, and Time.. Use to organize events, meetings, day-to-day projects, expense reports, personal records, etc. ... **$239.**

Latest versions.

No hidden charges.

External Drive Cover	$8.
Mouseway (mouse pad)	8.
Mouse Pocket (for your idle mouse)	8.
Mac Plus/Mac SE Cover	9.
ImageWriter II Dust Cover	9.
Printer Stand	17.
Mouse Cleaning Kit w/Mouse Pocket	17.
Disk Drive Cleaning Kit	20.
Tilt/Swivel	22.
Universal Copy Stand	23.
Polarizing Filter (for MacPlus or SE)	34.
Surge Suppressor	34.
Apple Security Kit	34.
Printer Muffler (80 column)	38.
Printer Muffler (132 column)	51.
Printer Muffler Stand (80 or 132 column)	25.
A-B Box (for the Mac Plus)	64.
System Saver Mac	64.
Control Center	64.
Turbo Mouse (for the MacPlus & SE)	83.

Koala Technologies ... 90 days
MacVision (digitizer, includes MoreVision)	175.

Kraft Systems ... 1 year
3-Button QuickStick	39.

Migent ... 1 year
Pocket Modem (ext. 300/1200 baud)	169.

Mirror Technologies ... 1 year
Magnum 800 External Drive (platinum)	199.
MagNet 30x (w/cable & print spoolers)	799.
Magnum Tape 40 Backup	999.
MagNet 40/40 (40 Meg, 40 Meg tape)	1995.

MSC Technologies ... lifetime
A+ Mouse (optical mouse)	79.
A+ Mouse ADB (for Mac SE & II)	89.

Nuvotech ... 1 year
EasyNet/AppleTalk cable	6.
EasyNet (DIN 8 or DB9 connector)	28.

Orange Micro ... 1 year
Grappler (universal parallel interface)	69.

Passport Designs ... 90 days
Passport MIDI Interface	95.

Personal Computer Peripherals ... 2 years
MacBottom HD 21 Meg (SCSI)	749.
MacBottom HD 32 Meg (SCSI)	899.
MacBottom HD 45 Meg (SCSI)	1159.
Optional built-in 1200 baud modems available for the above MacBottom units	call
MacBottom IHD-144 Meg (for Mac II; 1 yr.)	2195.

Borland ... NCP
Reflex Plus–High-powered relational database. Features built-in number crunching and extensive sorting ... **$179.**

Practical Peripherals ... 5 years
1200 Baud External Modem	$109.
2400 Baud External Modem	189.

SoftStyle ... 90 days
MacEnhancer (for plotters to printers)	159.

Summagraphics ... 90 days
MacTablet 12" x 12"	379.

Systems Control ... 2 years
MacGard (surge protection)	55.

Thunderware ... 90 days
ThunderScan 4.0 with PowerPort	199.
Mac II Power Accessory	42.

Western Automation
DASCH RAMdisk 2000K	399.

DISKS

Double-sided diskettes.
Sony 3½" DS/DD Disks (box of 10)	18.
Fuji 3½" DS/DD Disks (box of 10)	19.
MAXELL 3½" DS/DD Disks (box of 10)	20.
Verbatim 3½" DS/DD Disks (box of 10)	20.
3M 3½" DS/DD Disks (box of 10)	20.

MSC Technologies ... lifetime
A+ Mouse–An all optical mouse with no moving parts. Lightning fast, exceptionally accurate cursor control. Includes mouse pad.
A+ Mouse	**$79.**
A+ Mouse ADB	**$89.**

INFORMATION SERVICES

CompuServe
CompuServe Information Service	24.

Dow Jones
Dow Jones News/Retrieval Membership Kit	24.

ACCESSORIES

Clean Image Ribbon Co.
Clean Image Ribbon Kit	12.

Computer Coverup
External 800k Drive Cover	4.
ImageWriter II Cover	8.
Mac Plus or Mac SE Cover Set	10.

I/O Design
Available in navy blue.
Imageware II (ImageWriter II carry case)	45.
Macinware Plus (Mac Plus carry case)	65.
Macinware SE (Mac SE carry case)	75.

Kalmar Designs
Teakwood Roll-top Case (holds 45 disks)	14.
Teakwood Roll-top Case (holds 90 disks)	20.
Teakwood Roll-top Case (holds 135 disks)	28.

Thunderware ... 90 days
ThunderScan and PowerPort–Replaces your Image-Writer's ribbon cartridge to scan and reproduce high quality digitized images (up to 300 dpi). Saves true gray scales, and line art ... **$199.**

Magnum
Mouse Mover (let your mouse ride!)	14.

Moustrak
Moustrak Pad (standard 7" x 9")	8.
Moustrak Pad (large 9" x 11")	9.

Ribbons
ImageWriter Ribbons	5.
Available colors: black, blue, brown, green, orange, purple, red, yellow and silver.	
Rainbow Pack (6 single color ribbons)	25.
Four Color Ribbon (requires ImageWriter II)	11.

Sensible Softworks
Quality "MacAttire" nylon dust covers	7-17.
High Trek ImageWriter II carry case	49.
High Trek Mac SE & ext. kybd. carry case	69.

Smith & Bellows
Mahogany case (holds 90 disks)	28.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order.
- No sales tax.
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped 1st Class Mail, charged by weight.
- Allow 1 week for personal and company checks to clear.
- COD max. $1000. Cash or certified check.
- 120 day limited warranty on all products. *
- To order, call us anytime Monday thru Friday 9:00 to 9:00 EST, or Saturday 9:00 to 5:30 EST. You can call our business offices at 603/446-7711 Monday through Friday 9:00 to 5:30 EST.

SHIPPING

Continental US: Barring massive computer failures and other natural or unnatural catastrophes, all non-C.O.D. orders phoned into MacConnection by 8 PM EST will ship Airborne the same night for next day delivery, except for those within UPS Ground Zone 1 (which is also an overnight service). The total freight charge on any order placed with MacConnection is now $3. Backorders will also ship Airborne overnight at no additional charge. Some areas require an additional day delivery. **Hawaii, Alaska and Outside Continental US:** Call 603/446-7711 for information.

Pedal to the Metal

problems. Most software will be 100 percent compatible, with exceptions mainly due to the prefetch capability of the 68020.

There are also a few programs that modify their code or instruction library as they run. When the expected instruction is fetched from the processor's instruction cache — instead of from ROM or RAM memory where an altered condition for that instruction may be — the computer can hang or bomb. That's a 68020 problem, and does not affect the boards that use a faster 68000 CPU (the MacMemory products).
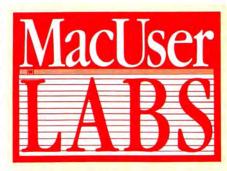
All tests were run using an Apple HD40SC. Applications and documents were kept in two separate folders. If a hard drive was written to or read from during test, the hard drive was reformatted and reloaded before each test. All tests were repeated (never less than three times and often more). All times shown are the average of the tests.

Excel Load In this test we loaded a 235K *Excel* (version 1.04) loan-amortization spreadsheet from a cold start and measured the time it took to load the application template. The time interval was measured from mouse-up with OPEN selected on the Menu bar to the time when the watch icon changed to the pointer.

Excel Recalculation This test was run directly after completing the *Excel* loading test; we did not perform a cold start. We took the same 235K *Excel* spreadsheet, entered a loan amount of $200,000, and measured the time it took to recalculate. The time interval was measured from mouse-up with CALCULATE NOW selected to the time when the watch icon changed to a bold cross.

Word Scroll This test was designed to measure the amount of time used for scrolling large text documents. We used *Word* 3.01 and loaded a 95K (55-page) text document from a cold start. The time started on mouse-down at the downward right-hand scroll bar arrow, and stopped when a single bold marker line stopped at the top of the window.

MacDraw Redraw This test was designed to test the amount of time taken to redraw large graphic images. For this test, we used a 51K

MacUser LABS

Benchmark Tests: Accelerator Boards

Performance Times (All times in seconds)

| Product	Normalized Average	HyperCard Sort	4th Dimension Sort	Excel Recalculation	Word Scroll	Load Applicati⟩
Mac Plus control	100	362.0	223.1	37.0	241.9	55.9
Mac SE control	87	311.4	189.9	30.5	210.8	46.9
Mac20	82	244.4	183.6	35.4	212.6	53.3
Turbo Max	62	0.0	168.6	17.1	192.0	37.4
Turbo SE	56	194.0	122.5	19.0	141.8	33.2
Accelerator Plus	40	132.5	81.0	11.1	116.9	35.7
Mac II control	40	33.7	62.6	10.8	219.7	22.6
Hypercharger 020	38	84.6	72.8	10.0	99.2	22.0
Orion SE Accelerator	37	80.8	100.7	12.4	108.7	25.4
Accelerator SE	34	114.9	71.3	10.3	99.5	23.7
Mac20MX	31	87.4	67.6	10.9	92.7	22.6
Prodigy SE	24	27.4	54.7	9.8	93.1	18.5
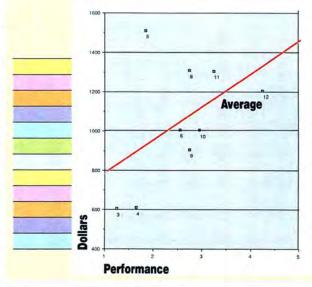
Price/Performance Ratio

After all our testing, you can get an idea of which boards provide the best performance for your dollar by the scatter chart below.
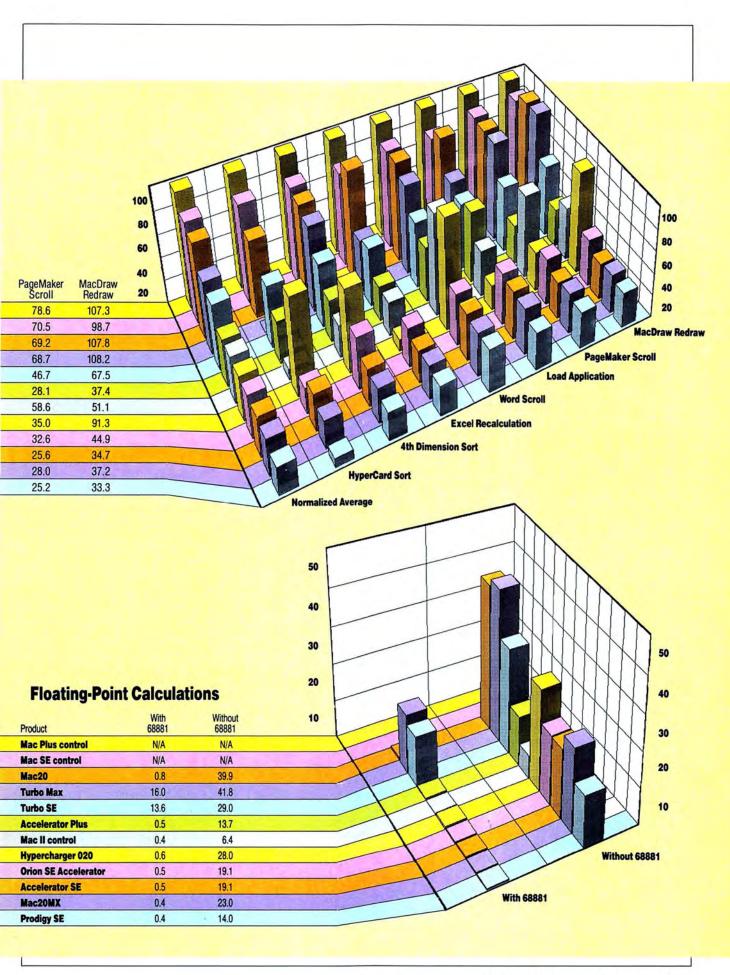
The Price/Performance ratio is the result of plotting the normalized performance time versus the base price of the board without a 68881 coprocessor (on all but one board the coprocessor is an option).

The diagonal line on the chart is the mathematical average of all the boards tested. Points plotted below and to the right of the average line are a better value.

Although the Prodigy SE is twice as expensive as the Turbo Max, its performance is almost three times greater.

Scatter Chart Product Code

1
2
3
4
5
6
7
8
9
10
11
12

PageMaker Scroll	MacDraw Redraw
78.6	107.3
70.5	98.7
69.2	107.8
68.7	108.2
46.7	67.5
28.1	37.4
58.6	51.1
35.0	91.3
32.6	44.9
25.6	34.7
28.0	37.2
25.2	33.3

MacDraw Redraw
PageMaker Scroll
Load Application
Word Scroll
Excel Recalculation
4th Dimension Sort
HyperCard Sort
Normalized Average

Floating-Point Calculations

Product	With 68881	Without 68881
Mac Plus control	N/A	N/A
Mac SE control	N/A	N/A
Mac20	0.8	39.9
Turbo Max	16.0	41.8
Turbo SE	13.6	29.0
Accelerator Plus	0.5	13.7
Mac II control	0.4	6.4
Hypercharger 020	0.6	28.0
Orion SE Accelerator	0.5	19.1
Accelerator SE	0.5	19.1
Mac20MX	0.4	23.0
Prodigy SE	0.4	14.0

Without 68881
With 68881

Pedal to the Metal

MacDraw 1.9.5 document. We loaded the test document and displayed it on the screen. We then selected NEW from the File menu to cover it with a new, blank screen. The time measured started on mouse-up after reselecting the original document window. The time stopped when the original document window outlined itself again.

PageMaker Scroll This test was designed to measure the speed with which accelerators handled mixed graphics and text. For this we chose a 309K *PageMaker* (version 2.0) document consisting of four tabloid pages. The time interval measured started on mouse-down on the right-facing scroll bar arrow, and stopped at the end of horizontal scroll with a vertical line appearing at the right window margin.

4th Dimension Sort This test was designed to examine a large data base

sort. We chose a 2,000-card name-and-address file created in *4th Dimension*. It consisted of 14 fields. Prior to the test, the records were initially sorted by company name. The time measured was for sorting by phone number. The time started at mouse-up with PHONE NUMBER selected; and stopped when the end-of-test card appeared in the window.

HyperCard Sort We used the same 2,000-card file that was used in the *4th Dimension* sort test to time a *HyperCard* sort. The file occupied 636 kilobytes of memory. As before, we started by sorting the cards by company name. Then the time started at mouse-up with PHONE NUMBER selected. The time stopped when the sort icon turned into the hand icon.

Floating Point We measured the amount of time to calculate 10,000 each of add, subtract, multiply and divide problems.

Server Test We tested for compatibility and speed of three basic configurations: Configuration 1 used an accelerated file server and a normal Macintosh; Configuration 2 used an accelerated Macintosh and a normal file server; and Configuration 3 was a control using a normal Macintosh and a normal file server. No significant changes were detected in the file server's throughput and there were no compatibility problems with any software.

Sound Test We tested sound quality using *SoundCap* 4.4 with several different digitized sound samples, including human voice and musical instruments. All 68020-based accelerators, with the exception of the Novy MAC20MX (normal with Sound Patch turned on in *Control Panel*) suffered extreme degradation of sound. All 68000-based accelerators showed very slight degradation.

FACT SHEETS

MAC20

Novy Systems' MAC20.

Novy Systems
69 Ravenwood Court
Ormond Beach, FL 32074
(904) 427-2358
Price as Tested: $595; $799 with 68881 math coprocessor.
Requires: Mac 512KE, Mac Plus or Mac SE.
Pluses:
• Software has Sound Driver patch that maintains sound quality.

Only Novy boards provided this feature.
Minuses:
• Can't add memory to the daughterboard; the only memory available is that on the motherboard.
• *SCSI INIT* program is difficult to use (partially because of documentation).
• Documentation is unclear and incomplete.

MAC20MX

Novy Systems' MAC20X.

Novy Systems
69 Ravenwood Court
Ormond Beach, FL 32074
(904) 427-2358
Price as Tested: $995, 16-MHz 68020, 1-megabyte SIMMs; $1285, with 68881 math coprocessor.
Requires: Mac 512KE, Mac Plus or Mac SE.
Pluses:
• Daughterboard RAM is user-upgradeable from 1 to 4 megabytes with standard SIMM modules.
• Compatible with faster memory and CPUs.
• Has a true 68000 emulation

mode (via the programmer's switch on the side of the Mac) to run programs not compatible on the 68020.
• Software allows greater flexibility in configuring board.
• RAMdisk software provided.
• Software has Sound Driver patch that maintains sound quality. Only Novy boards provide this feature.
Minuses:
• *SCSI INIT* program is difficult to use (partially because of documentation).
• Documentation is unclear and incomplete.

ORION SE

MacPEAK Systems' ORION SE.

MacPEAK Systems
1201 Spyglass
Austin, TX 78746
(800) 225-7509;
(512) 327-3211 in Texas.
Price as Tested: $895, 1-megabyte, 100ns 256K SIMMs; $295, 68881 math coprocessor.
Requires: Mac SE.
Pluses:
• Daughterboard RAM can be upgraded to 8 megabytes, and can use fast RAM.
• Apple ROMs can be copied into fast RAM.
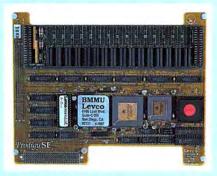• Daughterboard RAM is user-upgradeable with standard SIMM modules.
• Has PMMU option (Paged Memory Management Unit, a coprocessor that will allow the use of A/UX).
• Two expansion connectors, one for a large screen, the other is an optional 96-pin connector.
Minuses:
• Documentation is too brief and didn't explain all features of the product.
• Installation procedure was not very clear because of poor installation manual.

Prodigy SE

Levco Corp.'s Prodigy SE.

San Diego Levco Corporation
6160 Lusk Blvd., Suite C-100
San Diego, CA 92121
(619) 457-2011
SuperMac Technology
295 North Bernardo Avenue
Mountain View, CA 94043
(415) 964-8884
Price as Tested: $1499 includes 68881 coprocessor, 1-megabyte custom RAM module.
Requires: Mac SE.
Pluses:
• Has a true 68000 emulation mode (via the programmer's switch on the side of the Mac) to run programs not compatible on the 68020.
• Configuration software is accessible from a cdev in the Macintosh *Control Panel.*
• The RAMdisk supplied with the Prodigy is recoverable, which means that if you have a System error or power outage, you can return to the *Finder* with your RAMdisk intact.
• The motherboard memory is accessible as a RAMdisk.
• Installation is very straightforward; no problems were encountered.
• Has PMMU option (Paged Memory Management Unit, a coprocessor that will allow the use of A/UX).
Minuses:
• The daughterboard memory is not user-upgradeable. Must be done by a dealer.
• The daughterboard memory uses custom memory modules, not standard SIMM modules like those in the Mac Plus or SE.
• Although the RAM on the motherboard is not contiguous with the RAM on the daughterboard, it is available to the user as a RAMdisk.

HyperCharger 020

GCC's HyperCharger 020.

General Computer Corporation
580 Winter Street
Waltham, MA 02154
(617) 890-0880 for information;
(800) 634-9737 for literature only;
(800) 854-9737 for literature only in Illinois
Price as Tested: $1299, 1-megabyte RAM, 100ns 256K SIMMS; $1699 with 12-MHz 68881 coprocessor.
Requires: Mac SE.
Pluses:
• All RAM on daughterboard and motherboard is contiguous and accessible from the *Finder* (up to 4 megabytes). This well thought-out feature is found only on this board.
• Daughterboard RAM is user-upgradeable from 1 to 4 megabytes with standard SIMM modules.
• Two expansion connectors are provided. One is a 96-pin, the other is specifically for a large-screen monitor.
Installation is very straightforward; no problems were encountered.
Configuration software is accessible from a cdev in the Macintosh *Control Panel.*
Minuses:
• The 68881 coprocessor is only the relatively slow 12-MHz instead the 16-MHz version which would take fuller advantage of the 68020.

Pedal to the Metal

Radius Accelerator (for Mac Plus)

Radius Accelerator (for the Mac Plus).

Radius
404 East Plumeria Drive
San Jose, CA 95134
(408) 434-1010
Price as Tested: $995; $1390 with 68881 coprocessor.
Requires: Mac Plus.
Pluses:
• High-speed static RAM cache allows Macintosh RAM to emulate expensive, high speed RAM without actually using it.

• *MacWrite* 4.5 patch done automatically in firmware.
Minuses:
• Very difficult installation, can't completely close case unless modifications are made to chassis (remove a screw, cut out plastic).
• Can't disable the 68020 or the 68881 from software.
• Can't add memory to the daughterboard; the only memory available is that on the motherboard.
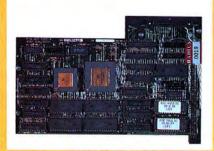
Radius Accelerator (for Mac SE)

Radius Accelerator (for the Mac SE).

Radius
404 East Plumeria Drive
San Jose, CA 95134
(408) 434-1010
Price as Tested: $995; $1390 with 68881 coprocessor.
Requires: Mac SE.
Pluses:
• High-speed static RAM cache allows Macintosh RAM to emulate expensive, high speed RAM without actually using it.
• Very easy to use, with no software to install. All configuration software is in firmware, and is acces-

sible by holding down the mouse button on boot.
• Can disable the 68020 from software for 68000 emulation.
• Installation is very straightforward.
• *MacWrite* 4.5 patch done automatically in firmware.
Minuses:
• Can't disable the 68881 from software.
• Can't add memory to the daughterboard; the only memory available is that on the motherboard.

Turbo SE

MacMemory's Turbo SE.

MacMemory
2480 North First Street
San Jose, CA 95131
(800) 862-2636;
(408) 922-0140 in California.
Price as Tested: $599, no memory; $399 for 68881 coprocessor.
Requires: Mac SE.
Pluses:
• 64-pin large-screen adapter is provided.

• Daughterboard RAM is user-upgradeable from 1 to 2.5 or 4 megabytes with standard SIMM modules.
• Two 64K video SIMMs are provided for the Macintosh video. They replace two of the four 256K SIMMs on the motherboard. All the motherboard SIMMs are then moved to the daughterboard.
• Can change the number of wait-states by using high-speed RAM.

TurboMax

MacMemory's TurboMax.

MacMemory
2480 North First Street
San Jose, CA 95131
(800) 862-2636;
(408) 922-0140 in California.
Price as Tested: $1149, 1.5 megabytes RAM, 120ns 256K SIMMs; $399, 68881 math coprocessor.
Requires: Mac 512KE or Mac Plus.
Pluses:
• Daughterboard RAM is user-upgradeable from 1.5 to 4 megabytes using standard SIMM modules.
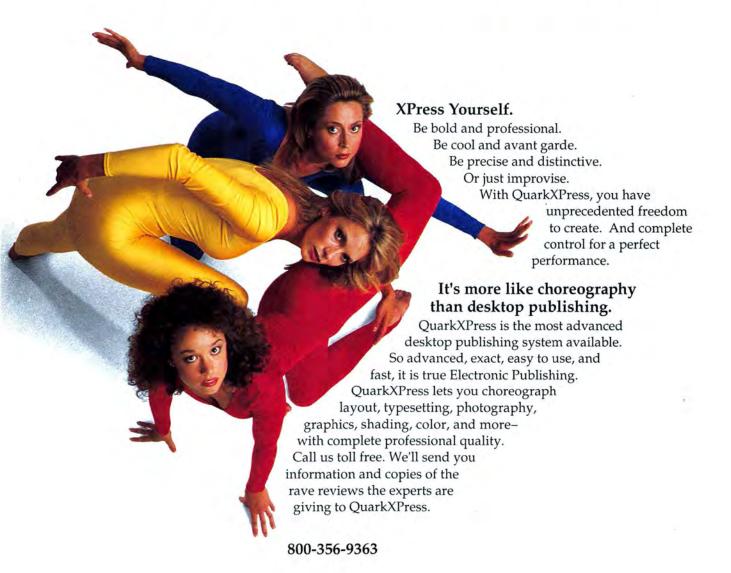
• Fast SCSI port included.
• Has a single built-in expansion connector for a large-screen monitor.
• Recoverable RAMdisk and print spooler software included.
Minuses:
• Difficult installation — required remounting internal disk drive as well as soldering wires.
• SCSI driver does not work with a wide range of hard drives; be sure to check if yours is one of them before purchase.

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All Systems Go

System Update 5.0 takes off to explore new applications, to seek out new networks, to boldly go where no Mac has gone before.

IN THE BEGINNING WAS... WAS... well, we hit the nub of the problem right away. Part of the design of the Macintosh is that there is no "operating system" as such, as there is on other computers. Instead, there is a triumvirate made up of the ROM, the *System* file, and the *Finder*. Many people think of the *Finder* as the Macintosh operating system, but it's actually just another program whose only really special capability (at least until now) is that other programs quit to it.

In the early days, this triumvirate was fairly transparent. All the user needed was a System disk, with the *System* file and the *Finder* on it to start up the Macintosh, and most application programs came on *System*

disks. More adventuresome users knew that the *System* file was the repository of fonts and desk accessories, and could customize their *Systems*. But to most people, the operating system was still just the *Finder*.

As time went on, Apple needed to fix things and change things, and this was accomplished with new *System* files, new *Finders* and new printer drivers. These would be sent to dealers, who would copy them onto customers' disks, and to developers, who would include them on their product disks. The rate of change accelerated, too. *System* 2.0 and *Finder* 1.1g were replaced by *System* 3.0 and *Finder* 4.0, which were quickly replaced by *System* 3.1 and *Finder* 4.1, which were even more quickly replaced by *System* 3.2 and *Finder* 4.1. New printer drivers were needed and created for the LaserWriter and AppleTalk ImageWriter.

When the Macintosh SE, Macintosh II and *AppleShare* came along, things began to get even more complicated. There were now four versions of ROM (64K, 128K, 256K SE and 256K II) to deal with. Some versions of the *System* file worked best with some ROMs, others with others, and whether or not *AppleShare* was used made a difference. Version numbers began to blur. There was a

System 4.1 and a *Finder* 4.1, but they didn't go together. Many Macintosh owners couldn't figure out what was happening, and finding out *System* versions was not always an easy task. The days of simply copying a *System* and *Finder* to update a System disk were gone.

With the latest version of System software, Apple has tried to simplify things. It has gathered all the pieces together onto four disks, documented in three manuals, and put the whole thing in a box that sells for $49. It is called the *Apple Macintosh System Software Update*, and has one number, version 5.0 (but each component has its own version number; see the sidebar). The box is clearly marked "Required equipment: Macintosh Plus, Macintosh SE, or Macintosh II," since the new software requires at least 128K ROMs and one megabyte of memory. Putting this software update in a box with an order number and price encourages dealers to carry the update and get it to their customers, as well as simplifying life for Macintosh owners.

MULTIFINDER

The big change with this version of system software is the inclusion of the long-awaited *MultiFinder* (codenamed *Juggler*). *MultiFinder* is an enhancement to the Macintosh "op-

BY ROBERT R. WIGGINS

All Systems Go

erating system" to allow multiple applications to run concurrently. *MultiFinder* consists of more than just the basic files which go into the System folder. It also requires a wide-ranging set of internal changes, implemented in changes to the *System* file and the *Finder*. It is the interrelationship of the *MultiFinder* files, *System* file, and *Finder* which pushed Apple toward the new method of distribution.

Despite its name, *MultiFinder* actually has very little to do with the *Finder*, and can be used with some of the third-party *Finder* substitutes on the market, such as *PowerStation*. But since most Macintosh owners
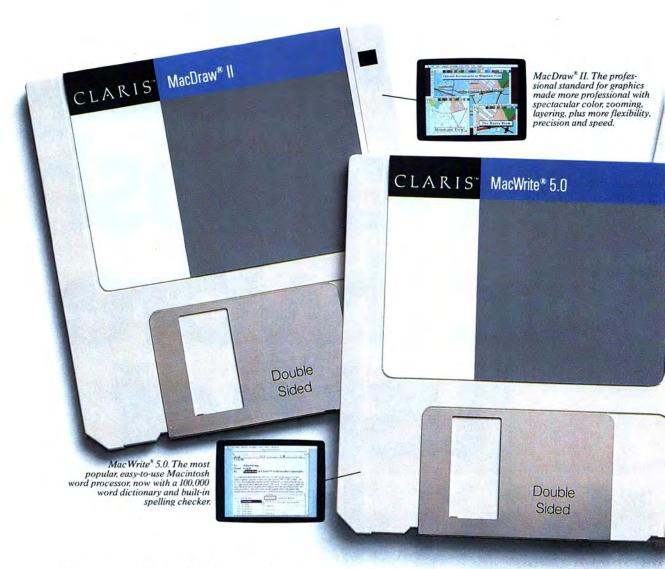
DISK CONTENTS
(Four 800K disks)

File/Folder Name	Ver	Description	File/Folder Name	Ver	Description
System Tools 1			**Utilities 1**		
System Folder	—	Folder	Apple HD SC Setup	1.5	Application program
Clipboard File	4.2	System file	Disk First Aid	1.3	Application program
Color	3.2	Control Panel cdev file	HDBackup	1.0	Application program
DA Handler	1.0	MultiFinder file	System Folder	—	Folder
Easy Access	1.0	INIT file	Clipboard File	4.2	System file
Finder	6.0	Finder	Color	3.2	Control Panel cdev file
Key Layout	2.2	Keycaps DA file	DA Handler	1.0	MultiFinder file
Keyboard	3.2	Control Panel cdev file	Easy Access	1.0	INIT file
General	3.2	Control Panel cdev file	Finder	6.0	Finder
Monitors	3.2	Control Panel cdev file (Mac II only)	General	3.2	Control Panel cdev file
			Key Layout	2.2	Keycaps DA file
Mouse	3.2	Control Panel cdev file	Keyboard	3.2	Control Panel cdev file
MultiFinder	1.0	MultiFinder	Monitors	3.2	Control Panel cdev file (Mac II only)
Scrapbook File	2.3	System file			
Sound	3.2	Control Panel cdev file (Mac II only)	Mouse	3.2	Control Panel cdev file
			MultiFinder	1.0	MultiFinder
Startup Device	3.2	Control Panel cdev file (Mac SE & II only)	Scrapbook File	2.3	System file
			Sound	3.2	Control Panel cdev file (Mac II only)
System	4.2	System			
TeachText	1.1	Application program	Startup Device	3.2	Control Panel cdev file (Mac SE & II only)
Update Folder	—	Folder			
Read Me	—	TeachText document	System	4.2	System
Utilities Folder	—	Folder	TeachText	1.1	Application program
Apple HD SC Setup	1.5	Application program	Update Folder	—	Folder
Installer	2.5	Application program	Read Me	—	TeachText document
Installer Scripts	—	Folder			
Macintosh II Script	4.2	Installer document	**Utilities 2**		
Macintosh Plus Script	4.2	Installer document	Apple File Exchange Folder	—	Folder
Macintosh SE Script	4.2	Installer document	Apple File Exchange	1.0.1	Application program
			DCA-RFT/MacWrite	1.0	Apple File Exchange document
System Tools 2			Font/DA Mover Folder	—	Folder
Installer	2.5	Application program	Desk Accessories	—	Font/DA Mover document
System Folder	—	Folder	Fonts	—	Font/DA Mover document
AppleTalk ImageWriter	2.6	Printer driver	Font/DA Mover	3.6	Application program
Background Printing	1.0	Installer document			
Backgrounder	1.0	System document (print spooler)			
Clipboard File	4.2	System file			
Color	3.2	Control Panel cdev file			
DA Handler	1.0	MultiFinder file			
Easy Access	1.0	INIT file			
Finder	6.0	Finder			
General	3.2	Control Panel cdev file			
ImageWriter	2.6	Printer driver			
Key Layout	2.2	Keycaps DA file			
Keyboard	3.2	Control Panel cdev file			
Laser Prep	5.0	LaserWriter prolog file			
LaserWriter	5.0	Printer driver			
PrintMonitor	1.0	Application program			
Scrapbook File	2.3	System file			
Sound	3.2	Control Panel cdev file (Mac II only)			
Spool Folder	—	Folder			
Startup Device	3.2	Control Panel cdev file (Mac SE & II only)			
System	4.2	System			
TeachText	1.1	Application program			
Update Folder	—	Application program			
Read Me	—	TeachText document			

DOCUMENTATION

Macintosh System Software Update User's Guide
Description of New Features
Updating Your Startup Disk
An Historical Perspective

Macintosh Utilities User's Guide
Apple HD SC Setup
Font/DA Mover
Apple File Exchange
Apple File Exchange: Advanced Features

MultiFinder User's Guide
Before You Begin
A Sample Session
Background Printing
Some Technical Points About Memory
The Set Startup Command
Tips for Working with MultiFinder
Troubleshooting

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CLARIS

think that the *Finder* is the Mac's operating system, the name "Multi-Finder" conveys the essence of what the product does.

MultiFinder builds on the base of *Switcher*'s "context switching" and adds capabilities for more program concurrency. Application programs which are "*MultiFinder*-aware" can continue to use the Mac's processor when they are in the "background" and the user is using another application program or desk accessory. This means that time-consuming tasks such as disk back-ups, file downloading, spreadsheet recalculation and data base sorting can be done while you work in a word processor or drawing program.

MultiFinder comes with some support files, including *DA Handler,* which creates a special *MultiFinder* "layer" for desk accessories to inhabit, which allows (or forces, depending on your perspective) all desk accessories to be "brought to the front" at the same time. *Multi-Finder* also includes a built-in Laser-Writer printing spooler called *Back-Grounder* which has a companion application program called *Print-Monitor* to track the progress of printing and control the scheduling of print jobs. *PrintMonitor* includes a "print at specific time" feature, a nice touch.

MultiFinder has gotten mixed reactions from program developers. The capabilities are appreciated, but the extra effort required to take advantage of them is not. Also, in order to ensure future compatibility, Apple has had to declare some sections of the operating system "off limits," and developers must wait until the "final" incarnation of *MultiFinder* to find out how to perform some of the tricks they have used in the past.

MultiFinder is the bridge between the old Macintosh operating system and a true multitasking operating system. It is an excellent effort, but a mixed blessing. During the transitional period, there will be compatibility problems and an increased number of ways for an application to fail, since Macintosh applications have never had to be careful not to step on other applications' toes before.

SYSTEM AND FINDER

The core of *System Tools* 5.0, as the update is also called, is *System* version 4.2 and *Finder* version 6.0. The major change in these versions is support for *MultiFinder*. There are also many minor changes and bug fixes, and improved color support for the Macintosh II.

In the *Finder,* the "About the Finder" choice under the Apple menu now displays the current *System* version as well as the *Finder* version, and shows the memory usage similar to the way *Switcher* handles memory display, which is useful when using *MultiFinder*. On a Macintosh II, there is also a new Color menu used to set icon colors. The SET STARTUP choice has been modified as well, and allows you to specify whether to start up using *Multi-Finder* or not. Setting startup without *MultiFinder* works as SET STARTUP did in the past, making the selected application the startup application. Setting startup with *MultiFinder* uses the currently running application(s). A minor enhancement to the *Finder* allows files to be copied from one folder to another on the same disk by holding down the Option key when selecting and dragging the icon.

The changes in the *System* file are invisible to the user, but are there nonetheless. One thing you may notice is how much larger this *System* file is than earlier versions. One reason for this is that this *System* file provides many of the functions in the SE and Mac II ROMs to Macintosh Plus users, and there are resources required for all three computers. By using the *Installer*

The Macintosh™ Finder

Finder: 6.0
System: 4.2

Larry, John, Steve, and Bruce
©1987 Apple Computer, Inc.

Total Memory: 4,096K Largest Unused Block: 1,646K

Smartcom II	250K
MacFullPaint	488K
MacWrite	183K
Finder	160K

The "About the Finder" choice under the Apple menu now gives memory information about the applications that are open.

Info

Locked ☐

AppleLink

Kind: application
Size: 130,962 bytes, 128K on disk

Where: Opus XV, MacBottom SCSI

Created: Mon, Jun 2, 1986 6:35 PM
Modified: Thu, Sep 17, 1987 1:52 AM

AppleLink™ Communications Interface v4.0
©1984..1986 Central Coast Software.

Suggested Memory Size (K): 168
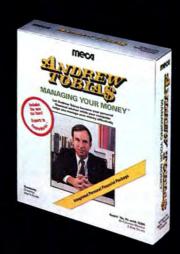
Application Memory Size (K): 168

The "Get Info" choice under the *Finder's* file menu allows you to set the desired memory size for each application program you want to use under *MultiFinder.*

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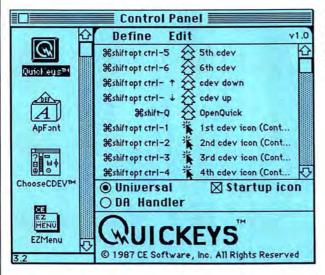
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Requirements: minimum 512K memory and two disk drives (1 drive must be at least an 800K).
Please circle 41 on reader service card.

All Systems Go

program described later on, the size of the *System* can be controlled somewhat.
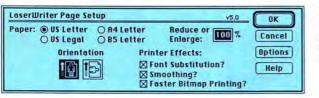
PRINTER DRIVERS

System Tools 5.0 includes new drivers for the ImageWriter, the Apple-Talk ImageWriter and the Laser-Writer. Most of the changes from the immediately preceding versions are minor and transparent to the user, but if you are upgrading from older versions you may be pleasantly surprised by the changes that have crept in over the last few updates.

In the *LaserWriter* driver, for example, the Page Setup dialog has been enhanced to allow options such as flipping the page image horizontally or vertically, inverting the image, using precision bitmap alignment and using a larger print area. Most people will never need these options, but the capabilities are there when needed.

MODULAR CONTROL PANEL

If you are upgrading from *Systems* prior to 4.0, you will discover the *Control Panel* has changed considerably. The new *Control Panel* is modular, and uses "cdev" files (for Control *DEVice*) that allow you to customize your control panel. Several third-party developers have released software that makes use of this option to be managed from the control panel.

Many of the cdev modules that come with *System Tools* 5.0 are for the Macintosh II, including a new one called "Color" that allows you to change the highlight color, the color used as a background when text or an icon is selected. The General cdev also adds the ability to set the desktop pattern color on a Macintosh II.

ODDS AND ENDS

Chooser has been enhanced to al-

low devices to be selected in different AppleTalk zones, as well as to turn background printing under *Multi-Finder* on and off.

The *Find File* desk accessory may also be new to you, and is used to locate files which can be moved to the desktop and put away later with the *Finder*'s Put Away menu choice. *Easy Access* is a file which allows you to turn on two new features, "sticky keys" and "mouse keys," which are designed to help people who have difficulty typing or using the mouse. (See the article "Open Door Policy" in the February '87 *MacUser*.)

INSTALLER

One problem in the System update process discovered early on was that users who had customized their *System* files with fonts and desk accessories were reluctant to move to a new *System* and re-customize. As a result, Apple developed the *Installer*, a program that updates older System disks.

The *Installer* works with scripts which tell it what to do, and *System Tools* 5.0 comes with three scripts, one each for the Macintosh Plus, SE and II. Based on the script, the *Installer* gets the necessary resources from the *System Tools* disk and installs them into the System folder being updated. In this way, existing fonts and desk accessories are left intact in the *System* file being updated.

The *Installer* can also be used to update your printing resources, and using the *Installer* on the *System Tools* 2 disk will present a choice of printers to update.

UTILITIES

System Tools 5.0 comes with several utility programs. *Apple HD SC Setup* is for users of Apple SCSI hard disks. *Font/DA Mover* is, as its name states, for moving fonts and desk accessories around and can be used to customize your *System*. *TeachText* is a special-purpose word processor used to create files which cannot be modified, such as the "Read Me" files which come on the *System Tools* disks. *HD Backup* is an adequate hard disk backup program, though many users prefer the third-party alternatives such as SuperMac's *Disk-*

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All Systems Go

Fit and PCPC's *HFS Backup. Disk First Aid* is an emergency disk repair program which can be used in a last attempt to recover data from a dam-

One problem in the System update process discovered early on was that users who had customized their System files with fonts and desk accessories were reluctant to move to a new System and re-customize.

aged disk before reinitializing. *Apple File Exchange* is a translator for Apple II ProDOS and MS-DOS files, and is a skeleton on which additional translators can be provided by third-party companies.

DOCUMENTATION

System Tools Update 5.0 comes with three manuals: a brief 29-page *User's Guide* which describes the features of the update and how to use the *Installer* program; a 35-page *MultiFinder User's Guide* which covers using *MultiFinder*, using the background printing feature and offers some tips; and a 108-page *Utilities User's Guide* which is the manual for *Apple HD SC Setup, Font/DA Mover, TeachText, Find File, HD Backup, Disk First Aid* and *Apple File Exchange.*

As with other end-user Macintosh documentation, the coverage is broad and not very deep, but the manuals serve to introduce the major features and usage of the various components. For example, the *MultiFinder* manual doesn't mention the problem that many users discovered downloading files, so they must

learn elsewhere that files need to be downloaded to closed folders.

SUPPORT

Apple is not known for their support, but given the importance of system software and the strategic importance to Apple of *MultiFinder*, you can be assured that Apple will keep track of any problems and fix them. Just don't expect any personal or telephone support, except what you can get from your dealer, if any.

THE BOTTOM LINE

System Tools 5.0 is a good value. The enhancements, while mostly minor, are almost all useful. *MultiFinder*, while offering new ways to get the most out of your Mac, is still new and potentially unstable, depending on what applications are used with it. Overall, however, this is the most fully tested and stable version of Macintosh System software in some time. If you have a Macintosh Plus, SE or II, you should upgrade and take advantage of the new features and improvements. Just be careful when experimenting with *MultiFinder*, and, as always, save and back up frequently. ▨

ROBERT WIGGINS IS MACUSER'S CONTRIBUTING BUSINESS EDITOR AND THE EDITOR AND PUBLISHER OF THE MACINTOSH BUSINESS LETTER, AND HAS SEVERAL TIMES MANAGED TO BEAT THE SYSTEM.

MACUSER RATING

System Tools 5.0 with MultiFinder ▲▲▲▲

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	□	□	□	□
Performance	■	■	■	■	□
Support	■	■	□	□	□
Consumer Value	■	■	■	■	■

Comments: The first multitasking system for the Mac, with other minor improvements. **Best Features:** The LaserWriter spooler that is part of *MultiFinder* and the Color *Control Panel* cdev for the Macintosh II. **Worst Features:** The large memory requirements and the tendency for some applications to malfunction under *MultiFinder*. **List Price:** $49. Published by Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014. (408) 996-1010. Macintosh Plus and at least one megabyte of memory required. Not copy protected.

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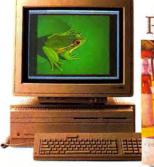
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LET'S GET THE BIG QUESTION OUT OF the way first: Version 3.01 of *Microsoft Word* works.

As a matter of fact, the new version — the number indicates a slight revision to the original, but it's a lot more — works quite well. It's good that it does, or Bill Gates would have found mobs of Macintosh users, lit tapers in hand, camped beneath his office window, howling for blood. It would not have been a pretty sight.

Word is important for the same reason that the new Apple keyboards are important; there's not much choice if you're a serious writer. I keep hearing about people who've written tomes using *MacWrite* and the original Macintosh keyboard, but they always struck me as the kind of people who dug through mountain ranges with a ballpoint pen. They presumably did it that way because they had to, but would have done it an easier way if one had been available.

Word 3.01 is that way. It's good, and it's powerful and its use is reasonably intuitive. At this writing —

> **Microsoft applied industrial strength bug spray and tossed in a dash of PC flavor for the latest — but surely not the last — Word.**

and there are other power word processors due on the market any minute — *Word* 3.01 is about all there is in its class.

Many, but not all, of the differences between versions 3.0 and 3.01 are bug fixes. Most of the others are changes in printing, and only one is of real consequence for a large number of users. To be sure that a document created under version 3.0 will print in 3.01, Microsoft tells you to open the document, repaginate

while holding down the Shift key and immediately save. Some of the other changes may affect you, so be sure to check out the Read Me First document on the disks.

Some annoying quirks remain. Snaking, newspaper-style columns still don't appear on screen next to each other, though you can see how they'll wind up in a document preview window. And entreaties from Dougs Clapp and Adams notwithstanding, there *still* isn't a way to count words. So, editors, if this review runs over or under, my apologies — *Word* just didn't let me check to see if it was to length.

THEM'S FIGHTIN' WORDS

In walking the byways and talking to other users while writing this review, I discovered a surprisingly strong love for *MacWrite* — a love that certainly exceeds its usefulness. *Word* is "too complicated," people said; "too many keystrokes — I don't need all that stuff."

That may be true. *Word* is a lot of program, and if all you do is punch

BY DANIEL J. ROSENBAUM

Macintosh SE

Roget's
INTERNATIONAL
Thesaurus

clear

delete

return

shift

enter

Don't
Set
Here

OFFICIAL

REG.U.S.
PAT.OFF.

Reworded

out an occasional letter or memo that you don't mind printing in 12-point Helvetica, *Word* probably isn't for you. If you write long reports, need to import graphics or could benefit from customizable pull-down menus, check out *Word*.

Some people, though, crave simplicity. For them, *Word* features a Short Menus mode, accessible at the bottom of the Edit menu. For example, in Short Menus the Document menu gives you a choice of opening a header or a footer, repaginating, inserting a footnote and checking the spelling. With Full Menus, you can also use a built-in outliner, generate an index and table of contents, perform calculations and number paragraphs. We'll go back to the flexibility of the menus later. For the moment, let's look at how the program is organized.

MOUSELESS MACHINATIONS

IBM PC users will be right at home with *Word*. In fact, it is possible to work with the program and barely touch the mouse. Pressing the period on the numeric keypad puts the menu bar in reverse video for a few

Word is important for the same reason that the new Apple keyboards are important; there's not much choice if you're a serious writer.

seconds. While it's in reverse, pressing a number on the keypad from 0 to 7 pulls down the corresponding menu: 0 brings down the Apple menu, 1 the File menu, 2 the Edit menu and so on. Pressing either the

down cursor key or the 2 on the numeric keypad (which corresponds to a down key on a PC keypad) moves you down the menu.

You don't even need the mouse to select text. Holding down the shift key while pressing a cursor key or a numeric keypad key will select text in that direction. SHIFT-2 will highlight text down; SHIFT-8 highlights it up; SHIFT-4 highlights left; and SHIFT-6 highlights right. SHIFT-7 moves the cursor to the beginning of the line and SHIFT-1 moves the cursor to the end of the line.

Carrying the IBM analogy further, the Command key works like the PC's Control key, so pressing COMMAND-6 moves the cursor to the next word to the right, and so on. The exception is COMMAND-1, which moves not to the end of the line, but to the end of the current sentence. Pressing COMMAND-SHIFT-6, then, would highlight the word to the right.

Wait — it gets better. All 26 letters

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of the alphabet have Command-key combinations assigned to them, and some of them are pretty obscure. A spelling check is started by pressing COMMAND-L. Footnoting is COMMAND-E. Character formatting is COMMAND-D. Closing a document is COMMAND-W.

Some of the most vital key combinations aren't even shown on the screen. You'd have to look in the manual to see that COMMAND-SHIFT-B boldfaces text, and COMMAND-SHIFT-I italicizes it. And you have to be pretty sharp-eyed to find out that COMMAND-SHIFT-> increases the size of

> **T**he trouble is that Word inexplicably doesn't give you access to all the fonts in your System. The manual says nothing about it, but the fonts just aren't there.

the selected text, and that COMMAND-SHIFT-< decreases it.

If you're not a keyboard freak, mousing around with *Word* is pretty straightforward. When the pointer is in the extreme left edge of the window, it points upwards and to the right — sort of north by northeast. Single-clicking marks the line next to the pointer; double-clicking marks that whole paragraph. Command-click marks the entire document; that turns out to be a fairly important technique, as you'll see later.

If you want to use the ruler, though, you'll have to use the mouse. The two triangles beneath the 0 on the ruler line control the left margin. You adjust the margin by clicking and dragging them. Clicking on the upper triangle lets you adjust the size of a paragraph's first-line indent. Clicking and dragging the lower triangle moves the left margin and keeps the indent distance fixed

relative to the margin. If you want to change the margin and leave the indent where it is (that is, fixed relative to the ruler), Shift-Click and drag on the lower triangle. The vertical lines on the ruler itself mark default tab stops, and the triangle on the right marks the right margin. The right margin can be dragged; default tabs need to be set from the Page Setup entry on the File menu.

The material on the line beneath the ruler line is fairly self-explanatory. The four characters on the left represent left, center, right and decimal tabs. The vertical line places a vertical line in your document. The four alignment icons set a paragraph to be left-aligned, centered, right-aligned or justified. The icons to the right of them control single-spacing, line-and-a-half spacing or double-spacing. The rightmost set lets you put an extra line space before a paragraph.
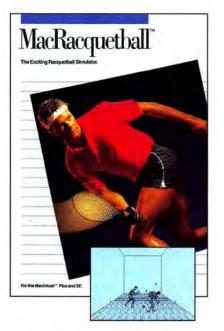
The key to all the formatting commands which can be issued through the ruler line is that they affect *only the paragraph that contains the cursor or is currently highlighted.* This goes to the heart of what some people consider to be *Word*'s confusing user interface. If you change margins or fonts, only the current paragraph's margins or fonts will be changed, unless you've marked more than one paragraph. To affect the entire document, you must put the pointer on the left edge of the window, press COMMAND-CLICK, and only then make the change you want.

Remember: *Word* formats its documents on a paragraph-by-paragraph basis. It's not enough to make a change — you must make sure that the change is applied to all the paragraphs you want changed.

So you see the designers have taken great pains to keep both Mac and PC users reasonably comfortable with *Word*. Comfort, though, means nothing if the program doesn't work or doesn't have the features that make the thing useful.

ULTERIOR BUGS

Version 3.0 was excoriated for its bugs, but if 3.01 has any left, I couldn't find them. [*Editor's note: Other readers have, however. They'll*

Reworded

The menu bar goes into reverse mode when you press the period on the keypad. This allows you to access all of the menu commands using the keypad numbers and cursor arrows.

To resize margins and indents, click the mouse and drag the two triangles beneath the 0 on the ruler. The vertical lines on the ruler indicate the default tabs, and the large triangle beneath the numeral 6 marks the right margin for the document.

Pressing COMMAND-OPTION- + turns the cursor into a giant plus sign. This forces *Word* 3.01 to recognize all the fonts in your *System,* including the ones it previously ignored.

be featured in upcoming bug reports.] When I asked the *MacUser* editors exactly what the problems were with version 3.0, they told me that its display and printing "didn't work." (Actually, I was told it in rather stronger terms not suitable for a family magazine.) Specifically, the old version had a habit of depositing paragraphs unexpectedly and randomly across the printed and displayed page.

Statements like this tend to follow writers into their graves, but I could find no functional problems with *Word* 3.01. Everything worked, if not precisely instinctively, at least reasonably well.

Now, with everyone gunning for this release of *Word,* I fully expect the letters column to be full of complaints like, "Rosenbaum's been drinking too much New Jersey water; features A, B and C don't work

right." But remember — just because something doesn't work the way you think it should doesn't mean it doesn't work.

And in fact, not everything here is wonderful; there are some oddities in the way *Word* works. The program doesn't pick up all the fonts in your *System,* and it doesn't automatically remember your preferred working font. The manual fails to explain the former, but tells how to fix the latter.

To fix the default fonts, you have to mess with style sheets. Style sheets are *Word*'s way of controlling prefab paragraph formats. If you want a paragraph to be double-spaced with a 1½-inch left indent, you can define a "style" which you may then apply to whatever paragraphs you wish to carry that format. Every paragraph has a "style," but the default style is called "Normal." (The style for the current paragraph is shown at the bottom of the screen, next to the page number.) To set your default font, you need to edit the Normal style so it includes the font you want.

Edit a style by pressing COMMAND-T (or select DEFINE STYLES on the Format menu), clicking on Normal and formatting as usual. If you want to set the font, use the Font menu. Then press the Define button, then the OK button, and your new font will become the default.
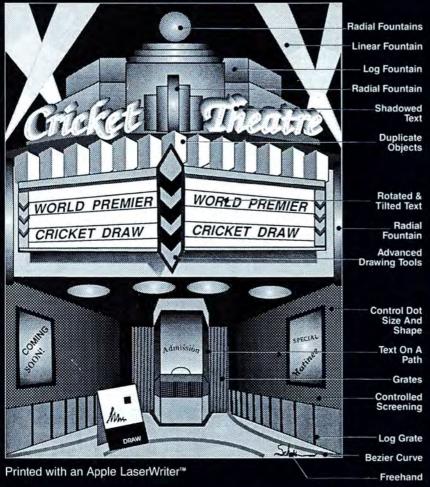
The trouble with this is that *Word* inexplicably doesn't give you access to all the fonts in your *System.* The manual says nothing about it, but the fonts just aren't there. All isn't lost, though, because you can edit the menus. Press COMMAND-OPTION- + and the cursor turns into a giant plus sign. (Although Microsoft calls it COMMAND-OPTION-+, you don't hold down the Shift key to execute this command, so purists would call this a COMMAND-OPTION-= key combination.) If you want to add an installed font to the Font menu, go into the Character entry on the Format menu and click on the font you want to appear in the Font menu. (All your fonts will appear.) The selected font will now show up in the Font menu. You can also add tab and paragraph formats to the Format menu, and even create an eighth menu called "Work" that contains

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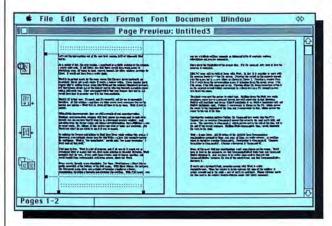
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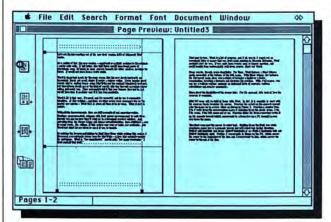
When it comes to Macintosh graphics software, there's just one name to remember — Cricket Software. Your local dealer will be happy to introduce you to the entire family: Cricket Graph, Cricket Draw, Cricket Presents..., and Cricket Device Drivers.

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Selecting PAGE PREVIEW in the File menu gives you a WYSIWYG display of your document. Use either the magnifying glass icon or double-click on a spot to examine it more closely.

Reset margins in Page Preview by selecting the Margins icon. The margin lines are displayed with handles that can be dragged to readjust width and page length.

the names of frequently used documents and styles, putting them just a point and click away.

Anything you add can be removed by pressing COMMAND-OPTION-MINUS and clicking on the entry you wish to erase.

You can use a similar technique to get help. Press COMMAND-?, and the I-beam turns into a giant question mark. (Again, since you don't hold the shift key down, this is technically a COMMAND-/ combination, but COMMAND-? is a better mnemonic.) Pull down the item you want help with, and you get a quick refresher on it. If you need help with something that isn't on a menu, ask for help from the Apple menu.

SNEAK PREVIEWS

A word needs to be said about the page summary facility, which is one of the stronger parts of the program. When you've got your page the way you think you want it, with columns set up, proper font changes in and graphics located, you can see how the document will look on paper by selecting Page Preview in the File menu.

To examine a spot on the page, either double-click on the spot you want to see, or click on the magnifying glass icon and drag it to that spot. To place a page number on the page, click on the page number icon and drag the number onto a page. If you don't want to see facing pages, click the lowest icon; click it again to get two pages on a single screen.

Most interesting is the margins icon. Click it and the margins are displayed, complete with handles. Point the mouse at one of the handles and drag any of the margin lines to where you want them. Release the mouse button and click somewhere off the page, and the document will reformat according to those new margins. If you only want to adjust a page break, you can drag the faint dotted line at the bottom of a page's text upwards; the text will reformat. The scroll bar on the right lets you page through the document, and the close box returns you to normal display.

THE PRICE OF POWER

Word is powerful, but it is not flawless. Text brought in with the Clipboard is not in your default style, but is always in Geneva. A small pain, but an odd bother. It is not possible to print only odd or even pages — a problem when you're printing on both sides of a sheet of paper, as you would when printing something to be bound.

One bug warning. During one work session, while testing columns, repaginate and page preview, paginating started to act up. I was not able to reproduce the difficulty, and it only turned up once, but I don't think I was doing anything wrong at the time. It's an unresolved issue, though everything appears OK.

When everything is added up, there is far more to praise *Word* for than to damn it. Bugs in an earlier version make this program something of a target — guilty until proved innocent — but my testing doesn't show anything that would eliminate this program from active consideration.

Word may be more word processor than you want or need, but it's a solid power tool for processing heavyweight quantities of text. If you've got a big job, *Word* may be the package for you.

You've got my word on it. 🖱

DANIEL J. ROSENBAUM IS A CONTRIBUTING EDITOR TO THE BOSTON COMPUTER SOCIETY AND HAS WRITTEN TWO BOOKS ABOUT WORD PROCESSING, WITH ANOTHER DUE TO BE PUBLISHED SHORTLY.

MACUSER RATING

Word 3.01 ♦♦♦♦½

Follows Mac Interface	■ ■ ■ ■ □
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	■ ■ ■ ■ ■
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ □ □
Consumer Value	■ ■ ■ ■ ■

Comments: The bugs appear to have been exterminated. **Best Features:** Customizable menus, full keyboard operation, inter-active page formatting. **Worst Feature:** Lack of on-screen column display. **List Price:** $395. Requires 512K+. Published by Microsoft, 16011 NE 36th Way, Redmond, WA 98073. (206) 882-8080. Not copy protected.

Roll Over, Walt Disney

VideoWorks II is a rarity: a sequel far better than the original.

THE ORIGINAL *VIDEOWORKS* SET THE standard for Macintosh animation, and *VideoWorks II* updates the standard. Not only is it more powerful, but it's easier to use. And, in keeping with the Mac's current businesslike air, *VideoWorks* has a new subtitle: "Animated Presentations for the Office, School, or Home." Yes, it can now pass as a business tool, but you can still make lots of good cartoons, too.
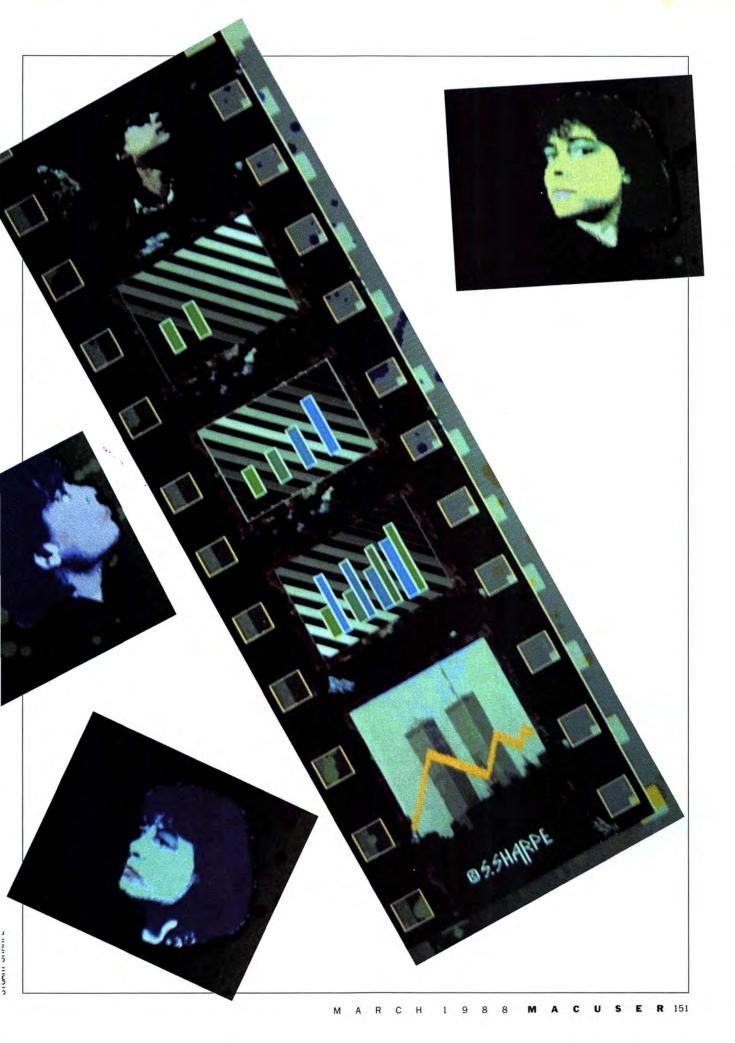
VideoWorks II's new approach offers two levels to the user: a sophisticated slide show manager called "Overview," and a full-blown animation environment — the real *VideoWorks II*. Many users won't ever need to learn the intricacies of animation, since the slide show mode is so versatile.

STILL LIFE PLUS

Overview is the "simple" mode of *VideoWorks II*. Although calling it a slide-show creator is generally accurate, Overview goes far beyond putting a series of still pictures on the screen.

An Overview presentation can import any of a variety of documents. *MacPaint*, PICT or *Glue* documents can be used as the "stills." The length of time each stays on the screen is defined, and transitions, including various wipes and dissolves,

BY SHARON ZARDETTO AKER

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Roll Over, Walt Disney
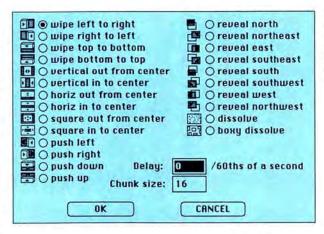
are chosen. You can set the speed and the "chunk size" for all the transitions. The chunk size is the number of pixels (from 1 to 512) that the wipe moves in the time chosen. For instance, moving 512 pixels in 1/60th of a second is instantaneous. One pixel in the same time results in 60 pixels a second and a gentle fade to the next image.

A *VideoWorks* movie can be inserted at any point in the presentation, and even another Overview document can be included. What's really special about Overview, though, is that you can superimpose a *VideoWorks* movie over any still document. So if you have a chart on the screen, an arrow (actually a *VideoWorks* movie) could float in to point at an important spot. You can also add sound effects from the built-in collection of nearly 100 sounds.

The actual creation of an Overview presentation is easy once you get the hang of it. Grab an icon for the type of document you want from the palette and drag it into the Overview sequence window. The Open dialog appears so you can find the specific file you want. Timing is set with the watch icon. Transitions are added by dragging the transition icon into the sequence and choosing one of 24 dissolves, wipes or fades from a dialog box.

When you want to overlay a *VideoWorks* movie onto a still, just put the film icon below the slide; sounds are added the same way. There's even a special QUICK CREATE option that

There is a wide variety of transitions to choose from in Overview; the same transitions are available for any frame of a *VideoWorks* movie.

puts all the documents from a specified folder into the Overview window without your having to open each one individually.

To position a document on the screen, double-click on its icon in the Overview window. The document is displayed in the background and its Get Info window opens — not to be confused with the GET INFO command issued from the desktop. This Get Info window lets you position the art on the screen without your having to worry about where it's placed on the original art document. Type the coordinates in the Get Info window, or simply drag the document around the screen with the Hand tool. The Get Info window for a *VideoWorks* movie in Overview lets you set a number of options: What position it plays in (so you can line it up correctly relative to the slide it's playing over); when it starts (with or after the slide is displayed); whether its elements disappear when the movie is over, leaving only the slide on the screen; whether the movie should run for its own length of time or match the timing for the slide; and whether the movie's sounds should be played.

If you are working in Overview and want to create a quick *VideoWorks* enhancement for any slide, it's easy to switch to the VideoWorks mode; the program even keeps the slide in the background so you can work on top of it.

Overview lets you launch directly into another program; when you quit that application, you'll be returned to Overview as you left it. So, for instance, if you notice a *Mac-*

Paint document slide is not exactly the way you want it, go directly to *MacPaint* and fix it. Quitting *MacPaint* brings you back to Overview, with your slide show as you left it — except that the *MacPaint* document is fixed. You can set the launch program for a generic document in a preferences dialog. For example, a PICT document can take you to
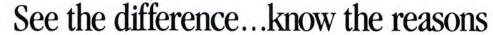
V ideoWorks has an almost bewildering number of windows, and lots of program-specific terminology.

MacDraw or to *SuperPaint*. You can also launch another Overview document that might be part of a slide show; then fix it and return to the current presentation — and you can do this five levels deep.

Launching into another application is a neat trick. However, it would have been an unnecessary trick if Overview shared the Paint facilities of the VideoWorks mode, which would allow you to touch up a slide without leaving Overview. Designing the Paint window as a desk accessory would have solved this problem. Overview has other drawbacks, too. It seems to be designed to create self-running slide shows rather than shows that enhance a talk or

Roll Over, Walt Disney

speech. You can't set an "infinite" time for a slide so that it is displayed until you manually move forward to the next slide. While a mouse click always moves you to the next slide regardless of the time setting — and you can set a very long time for display, such as 10 minutes — the "wait for a click" setting should be built in. Nor can you make the mouse cursor disappear or change shape; an enlarged arrow would be especially helpful for pointing things out on the screen.
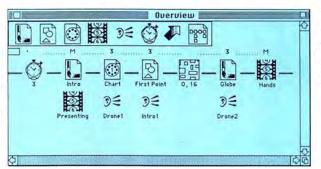
The other thing Overview needs is a "list" view. Icons are fine for short presentations, but handling a large number of documents in the Overview window is clumsy. There's no way to find out just how many slides you've included, and there's no GO TO command to jump to the one you want. You can only scroll back and forth along the horizontal line of icons. A text view (no matter how heretical it sounds) would be much easier to work with for large presentations.

The Overview window. The icon palette is at the top; in the main window, the icons represent the slide show presentation and can be easily reorganized.

Four of *VideoWorks'* windows. Each cast member you draw or alter in an easel in the Paint window is automatically entered in the Cast window.

THE TOP FLOOR
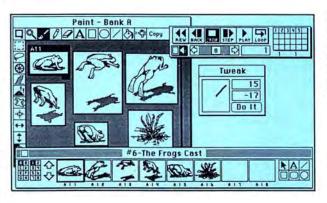
VideoWorks II offers many improvements over the original version. Color and large screen capability, for instance, have been added to keep up with hardware advances.

Two of the most significant improvements in the working environment (as opposed to the finished product) are "film loops" and "registration points" — there's more on

those enhancements in the sidebar "For the Birds."

VideoWorks has an almost bewildering number of windows, and lots of program-specific terminology. The screen itself is the "stage;" each piece of art you use, whether animated or immobile, is a "cast member." Each cast member (you can have up to 512 of them in a movie) appears in a separate cell in the Cast window. The Paint window lets you create or alter cast members. Each time you use an "easel" in the Paint window, its contents are automatically entered into the Cast window. The movie you make consists of a series of "frames," like genuine movie film. The Control Panel lets you play your movie with VCR-like controls: Play, Rewind, Fast Forward and Step and Back to move a frame at a time. A Loop button moves the film back to its beginning once it has ended. The last of the main windows is the Score window, and it's the crux of movie creation. It represents, with esoteric notation, everything in the movie, much as a conductor's score represents everything an orchestra plays.

GOOD ENOUGH FOR HOLLYWOOD?

To make a movie, start, as any good director does, by casting it. Create cast members in the Paint window, or paste them directly into the Cast window from the Clipboard after creating them elsewhere. You can even put a snip of animation in

The Control Panel lets you play your movie with VCR-like controls: Play, Rewind, Fast Forward, and Step and Back to move a frame at a time.

the Cast window and treat it as a cast member.

Once you have your cast set, decide what kind of animation you want. The easiest is to make a single object move across the screen. But,

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Roll Over, Walt Disney

even a simple motion like that can be done in a number of ways.
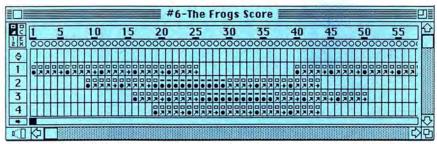
The easiest way to make something move across the screen is to do a "real time" recording. Just drag the object around on the screen and the motion is recorded. For smoother motion that goes in only one direction from start to finish, use the IN-BETWEEN command. With that you define the beginning and end points for the object, how many frames you want between them, and *voilà*! You get smooth, instant motion. If you drag to change the size of the image, the IN-BETWEEN command figures out all the intervening sizes, too. The third option is to use the Tweak window, which lets you define the motion pixel by pixel from frame to frame. Since it deals in such small values, the Tweak window is more appropriate for fine-tuning movement.

A more sophisticated technique for animation is to change the appearance of the cast member slightly from frame to frame. The flag on the sailboat, for instance, could flutter in the breeze as the ship moves. This involves making two or more cast members for a single item, and switching between or among them as the frames advance. This is a simple technique in *VideoWorks* because all you have to do is click forward a

frame and double-click on the cast member you want on the stage. The new cast member replaces the currently-selected member.

In the old *VideoWorks*, replacing cast members was tedious because

The hieroglyphics of the Score window are simple enough to interpret after a little practice. This display indicates when each cast member appears and disappears, and in what direction it moves from frame to frame.
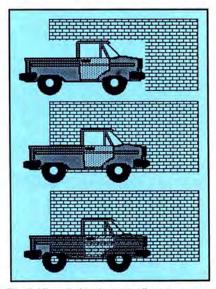
the centers of the figures were always matched; you had to manually tweak the position of the replacement so it would be in the right spot relative to the last cast member. Now, though, you can set the registration point yourself for any cast member while you're in the Paint window; the figures are matched at their registration points rather than at their centers. This makes it simple to keep, for instance, the body of a bird as the registration point as its wings are flapping, no matter what the actual center of the figure is.

MOVING RIGHT ON UP

You can make simple movies without using (or only slightly using) the Score window, but learning how to "Score" makes heavy-duty animation easier. The score of the movie gives you the overall picture (no pun intended) in a row and column format. Working in the Score window lets you polish the production, the film and frame transitions and sound.

VideoWorks has 24 "channels," which are layers of items on the screen. The channel a cast member is assigned to defines its priority on the screen — whether it appears in front of or behind other items. In the Score window, you can Cut, Copy and Paste frames of animation within or between channels. That lets you quickly turn a single bird flying across the screen into a flock that would win Hitchcock's approval.

In addition to handling 24 channels of cast members, the Score window coordinates sound with the action. The hierarchical Sound menu supplies about 100 different "canned" sounds, as well as access to sampled sounds and *MacInTalk* speech. The Score window also lets

The "ink" applied to the truck affects its appearance in relation to the wall behind it. At the top, "Copy," the normal mode; in the center, "Matte;" and at the bottom, "Or," the transparent mode.

you insert transitions between frames (the same ones as are available in Overview) and control the speed of the movie.

The information in the Score window looks like hieroglyphics until you get used to the symbols. Then they still look like hieroglyphics, but at least you can interpret them. On a simple level, you need only to look for where the appearance of a cast member begins and ends, but much more information is available. The Score window provides a row for each of the 24 channels; each column represents a frame. The basic display shows in which frame a cast member appears, the direction it moved since the last frame and when it disappears from the movie. An optional display shows the "ink" used for the cast member; you can set and change inks from within the Score window as well as from the Ink menu. A third display option tells

you what number the Cast member occupies in the Cast window. The fourth option, the Extended Button, lets you read all or any combination of this information plus the X and Y coordinates of the image and the changes in X and Y values between frames. Once you get used to reading the hieroglyphics, the Score window becomes an amazingly powerful tool. It allows you to make global changes to an image within a sequence as opposed to changing each cell one at a time.

THAT'S NOT ALL, FOLKS

VideoWorks procedures can be carried out by menu commands, keyboard equivalents or by using the mouse. The Cast window includes a half-dozen icons that let you draw shapes and quickly add text to any frame. There is a menu full of patterns, another that provides text commands and another that lets you select the inks you need. *VideoWorks* uses hierarchical menus to cut down on the clutter of all the commands. Another clutter-cutter is the Short/ Long menus modes that you can toggle between. Short menus give you only the basic functions, while Long menus let advanced users have a full array of command choices.

There are a lot of keyboard commands. The numeric keypad doubles as a control panel for frame-stepping, rewind and the other general commands; and windows are assigned numbers so you can toggle them on and off. Unfortunately, the File menu lacks the basics of COM-MAND-P, -Q and -S for PRINT, QUIT and SAVE; the letters are used elsewhere. It's difficult not to hit COMMAND-S for SAVE at regular intervals; the menus should at least be configurable. Oddly enough, COMMAND-Q will QUIT if you are using a *System* other than the one provided on the master disk. It's also missing a CLOSE command entirely — a strange oversight in such an elegantly designed program. You have to issue a NEW or OPEN command to close the current document.
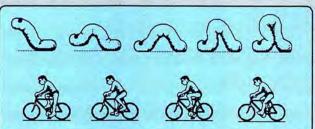
The Ink menu is one that you have to experiment with quite a bit to get just the right effects. The basic inks of Copy, Or, Xor and BIC, and their

Clip Joint

Just as clip art came to the rescue of those of us who, even with *MacPaint*, couldn't produce artistic results, now there's "clip animation" to rescue us from the doldrums of animated presentations. And there's special clip art to use for animation: figures in various stages of movement that you can put in a sequence of frames.

Clip animation is particularly helpful for adding spice to Overview presentations, but it can also be used as the basis for, or in addition to, original movies.

VideoWorks II comes with a number of clip animation sequences and some animation artwork. In addition, the publishers plan separate disks of clip animation, full movies, artwork and even digitized sound files; at this point, the expected price is $60 per disk.

Samples of animation art provided with *VideoWorks*.

complements of Not Copy, Not Or, Not Xor and Not BIC, define how the black and white parts of an image combine with the black and white parts of anything behind it. (It's too bad they chose to keep those names in the menu; OR and XOR particularly smack of the binary roots of programming and combining digits, and they seem out of place here.) The Matte and Mask options, also in the Ink menu, rid an object of its surrounding white space and let you see through the "holes" in an item, respectively.

While the *VideoWorks II* documentation is a great improvement over the original manual, there are still many grammatical lapses and awkwardly structured sentences. But all the information you need is there. There are excellent tutorial sections for both Overview and *VideoWorks* tied into the samples on the disk. Animating tips are sprinkled throughout. In addition, *VideoWorks* comes with a good tutorial disk and a helpful quick reference card. There is also some on-line help, but it's brief and so general in nature that you won't want to be without the manual while you're learning your way around.

FINAL CUT

VideoWorks II is aimed at the busi-

ness market because that's where the money is, and that's where the Mac is going. It can be a valuable tool in the business world. But it's worth every penny (if you have that many pennies) to anyone who is fascinated with the graphics capabilities of the Mac. It's better and more satisfying than any game, and you'll get many more hours of pleasure from it than you would from most games.

But it's also true that creating the movie is a lot more fun than just watching it. After all, film, even when simulated on a computer, is a passive medium. While *VideoWorks*

Roll Over, Walt Disney

For the Birds

Two things that make animation so easy in *VideoWorks II* are the availability of registration points and film loops. To create a flock of birds flying across the screen, here's all you have to do.

Draw the figures (the bird with its wings in different positions) in the Paint window in separate easels; they're automatically entered into the Cast window. Set the registration point for each figure at the bird's head.

Drag the first version of the bird onto the screen.

Step forward to the next frame, and double-click on the next version of the bird; the second figure replaces the first.

Step and double-click for each of the other versions of the bird.

What you have at this point is a bird flapping its wings, staying in the same spot on the screen.

Instead of repeating this sequence in slightly different spots on the screen to achieve the across-the-screen motion, take a shortcut:
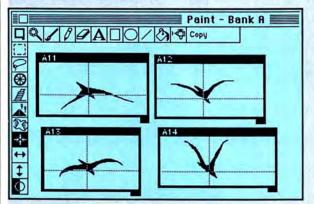
Copy the frames you've already created from the Score window.

Paste sequence into the Cast window. You've created a "film loop" as a single cast member; animation that you can use as you would any regular cast member.

With the film loop selected in the cast member window, hold down the Command and Option keys and drag the bird around on the screen.

This makes a real-time recording, and the bird, with its wings flapping, moves around the screen in the pattern you dragged with the mouse.

With that movie running, you can Command-Option-drag again (and again and again) to add more birds to the movie.

Setting registration points for each cast member helps keep the animation centered around the right spot.

II movies can be imported into an interactive application like *Hyper-Card*, *VideoWorks* itself doesn't let users interact with the program. They might as well be sitting in front of a TV set.

Desktop presentations are best when they are interactive. At press time, there was talk of an upgrade called *VideoWorks Interactive* which would add buttons and allow hot spots within a movie, but it's still in development. Even in its present form, if you want or need to create animation, *VideoWorks II* is the best tool on the market. 🖰

SHARON ZARDETTO AKER IS A CONTRIBUT-ING EDITOR FOR MACUSER AND THINKS CAR-TOONS ARE A PRETTY IMPORTANT BUSINESS, TOO.

M A C U S E R R A T I N G					
VideoWorks II 🎬🎬🎬🎬½					
Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	■	□	□	□
Performance	■	■	■	■	■
Support	■	■	■	■	□
Consumer Value	■	■	■	■	■

Comments: An elegant, sophisticated program that lets you create movies easily. The Overview slide show manager alone is great; the improved *VideoWorks* animator is wonderful. **Best Feature:** The Overview module, and the addition of registration points and film clips in the VideoWorks module. **Worst Feature:** Standard command keys from the File menu are used for other purposes. **List Price:** $195. distributed by Broderbund Software, 17 Paul Dr., San Rafael, CA 94903-2101. (415) 492-3200. Requires 512K+. Not copy protected.

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— *Jim*

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A Valentine's Day Tale

Do you still need

convincing? Let this

English gentleman

forever put your mind at

ease about your

Macintosh.

VINDICATION IS ALWAYS AGREE-able. In my case, it is essential. "You'll see!" I shout, "I'll be vindicated! Time will tell!"

"It better do, buster," they shout back, "or it's out in the street on your butt, and no hooey about compensation either."

Well, . . . my rump is safe for the time being. I was in The States what seems just like the other day (Can it *really* be that long ago? My gosh, we'll soon all be dead at this rate.) and, more importantly, so were thousands of others. *Tens* of thousands of others. And, most important of all, so was money. Lots of money.

I liked seeing all that money. I had, at one time, suspected that the Macintosh might (due to corporate stupidity, executive conformity, colossal marketing idiocies on the part of Apple Computer, Inc. and the general inability of the broad mass of Men In Suits to see a good thing when it was waggled under their noses) remain a minority machine, purchased only by people who look like the sort of chaps who program for it.

Not so; the Macworld Expo clearly showed that the machine is here to stay, and the boring imbeciles who won't buy anything unless it says "IBM" and is difficult to use had better come to their senses.

It seems obvious to me, O ye corporatists out there, still pale and nervous about your jobs, that IBM has done the Mac the greatest service imaginable with its rather creaky "new" PS/2 personal computer. What's wrong with the PS/2? Nothing. It is unquestionably the finest desktop computer of 1983. Alas, this is 1988. You can build a great corporation around the motto "Yesterday's Technology — Tomorrow!" but you must expect people to whine, even if they are a tiny minority. So: what the PS/2 with its OS/2

BY MICHAEL BYWATER

A Valentine's Day Tale

operating system *has* done is display IBM's capitulation to the "sissy" Macintosh user interface of windows, icons, mice and so forth; and what it *hasn't* done is do it very well.

The revolutionary operating system, OS/2, is still but a fragrant vision emanating from the person of Microsoft's Bill Gates; the software adheres to no consistent set of protocols (the "graphic interface" being, like beauty itself, merely skin deep); the chip at the heart of the machine is by no means the most advanced option available to Big Blue; the color is inferior to the Mac II; and the much-trumpeted concurrency which OS/2 *will* offer (always providing you run widdershins three times round the big red barn and pluck a nosegay of wild peonies before cockcrow) is damn-near available right *now* with the Mac's *MultiFinder*.

Even in the current marketers' flavor-of-the-month, desktop publishing, IBM's choice of Adobe's PostScript as its printing language merely strengthens Apple's position, since Steve Jobs made a commitment to it many moons ago, and since the machine he fathered unquestionably does DTP much better than the IBM and its clones.

But the *main* point is that IBM is effectively saying: "All right. We 'fess up. The Mac-type interface is the way things are inevitably going, and what we are going to do is offer you a not-very-good version of that interface. You *can* buy the real thing for the same price if you buy Mac, but remember: The real thing does not say 'IBM' on it, so someone may well fire you if you buy it."

That's fine for sheep and cowards, but anyone in their right mind is going to say "Nuts to that!" and buy the real thing. And, judging by the interest and the level of prosperity at the Macworld Expo, there are quite a few people in their right minds walking around, still employed and doing rather well.

The end result? Well, . . . a couple of years back, people would come into my office, look at my Mac and say: "What the hell is that?" Now, I suspect, things are reaching the stage when people walk into an office with a new IBM sitting on a desk and say:

"Oh. A new IBM. Why did you get that? You could have had a Macintosh for the same money."

The philosophical crux of all this passionate partisanship is simply this: I believe that, at last, the Good

> **O**n the other hand, if you take the Macintosh route, you are clever. You are smart and a hero, and animals will cross the street just to be near you.

Guys are winning. PC sales over recent months in the United States seem, according to decent and reputable industry sources, to have been a pretty equal three-way split between IBM, IBM clones and Macs. That's quite a big leap toward orthodox respectability for the once-maverick machine, and while I resent the disproportionate attention being paid to the elusive Corporate Customer by Apple (who seem to have forgotten about the likes of us, and who got them where they are today, may I ask? Harrumph!) I am on the whole pretty happy about it.

In the end, I maintain that if you choose to do things the IBM way, you are taking a step backward: making things unnecessarily difficult, and being a gull and a dupe and a masochist. You are probably the sort of person who does unspeakable things with your food, and you can bet that your dog does *not* look upon you as some sort of god.

On the other hand, if you take the Macintosh route, you are clever. You are smart and a hero, and animals will cross the street just to be near you.
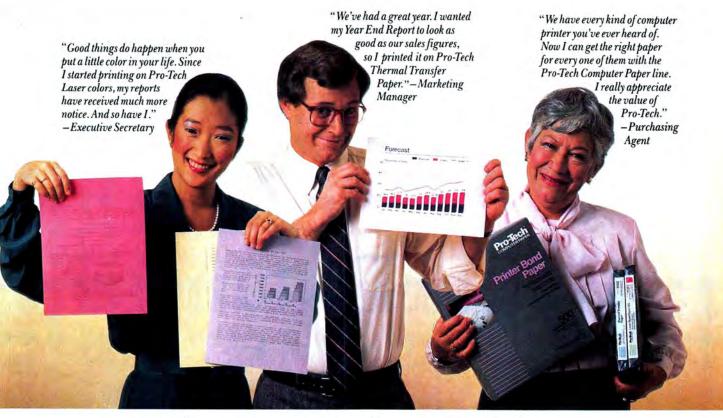
Look, for example, at the program everyone was clustering around at the Expo, and still is wherever they see it: *HyperCard*, Bill Atkinson's masterpiece. I know it's all been said

before, but *HyperCard* extends the Macintosh principle that the only way to make computers really useful is first of all to understand how *people* think and work. *HyperCard's* Rolodex metaphor and simple tools, enabling the generation of anything you want, sound terribly simple, but of course the point is that it *is* terribly simple, and therein is its glory. I suspect that *HyperCard* will once again revolutionize the way we use computers, not the least of all because it allows us to store and retrieve knowledge and information by *association* and not by indices or hierarchies.

Everyone is excited by *HyperCard*. The users and the Mac evangelists are excited because it is unique, and uniquely powerful; and the software developers are excited in a different sort of way, the sort of way you get excited in when you see a shark's-fin following your surfboard, because many of them believe (rightly or wrongly) that *HyperCard* will make the construction of so many applications so easy that more than a few will go out of business. After all, why buy a generalized make-do-and-mend application when, with your free *HyperCard*, you can make your machine do exactly what you want right now?

So . . all was roses? No. Not quite. The blot on the Macworld Expo was the exposition organiser, a disobliging person who wishes to be known as Mitch Hall, and his staff. These people may not like the Press but why be offensive without reason? Do the sponsors *really* want to exclude the Press and thus languish in obscurity, or are they being ill-served by "Mitch Hall"? Perhaps he just doesn't like publicity, and having got close, by God I can see why. ▨

MICHAEL BYWATER IS SENIOR EDITOR OF PUNCH, BRITAIN'S OLDEST SATIRICAL WEEKLY. HE WRITES A REGULAR COLUMN FOR MACUSER UK AND HAS PONTIFICATED ABOUT TECHNOLOGY (AND A LOT OTHER WEIRD AND TWISTED THINGS) IN MOST MAJOR BRITISH NEWSPAPERS AND TELEVISION, AND IS CURRENTLY WORKING ON A MAJOR GAME WHICH HE AIN'T ALLOWED TO TALK ABOUT. HE LIVES IN LONDON WITH A LARGE COLLECTION OF DOUGLAS ADAMS' SOFTWARE AND A CAT, AND ONLY COMES OUT AFTER DARK.

HyperBusiness

WHEN *HYPERCARD* DEBUTED LAST August, part of the excitement it generated was because it opened up the Macintosh to non-programmers. And because *HyperCard* was being bundled with the Mac, it was widely predicted that it would quickly become a standard and spawn an industry segment producing "stackware." *Business Class* and *Focal Point,* written by Danny Goodman, author of *The Complete HyperCard Handbook,* are among the first commercial stacks to make it to market. And if they are any indication of what is to come, HyperCard might just catch on. Worthy of special note is the fact that *Business Class* and *Focal* Point are "open" stacks, meaning that you can go in and examine their scripts and inner workings, learn from them and even customize them.

THE HEAD OF THE CLASS

Business Class is the less useful of the two stacks, but if you need its capabilities, it's worth looking at.

Focal Point and Business Class take HyperCard to the executive suite.
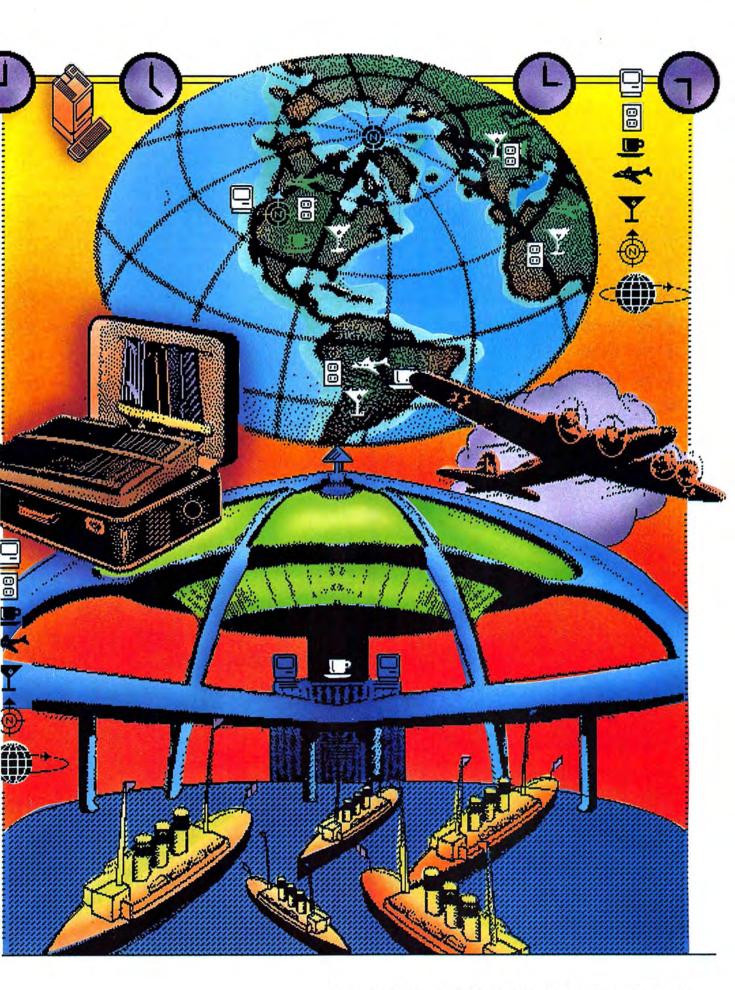
Business Class is a world travel information data base covering 65 countries on six continents and an itinerary planner for globe-trotting business executives. For each country covered, *Business Class* offers information about currency, including a currency converter; airport and airline information; ground transportation information (bus, taxi, trains); visa requirements and customs information; social customs, especially tipping; a list of holidays and special events; annual climate norms for major cities (temperatures given in degrees Fahrenheit, although there is a C/F converter); postage and ship-

ping information; time zone information, including a time converter; emergency information, including hospitals, embassies, police and fire; a list of hotels with phone numbers and Telex codes; electrical and television standards information; and a telephone directory with international dialing instructions as well as space for you to add your own numbers.

GOING FIRST CLASS
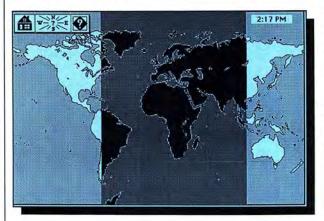
Business Class is very intuitive and easy to use. It comes with an installer which sets it up and puts a *Business Class* button on your *HyperCard* Home card. The first time you use it, it asks for some simple information to customize it, such as your time zone, the name of your town or metropolitan area, your currency and exchange rate with the dollar, and whether or not daylight-saving time is in effect. Once this information is entered, it never asks again, although you can change it if you need to.

Normally on starting up *Business Class* you see a map of the world,

BY ROBERT R. WIGGINS
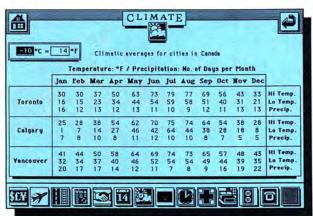
HyperBusiness

The main "menu" of *Business Class* is a map of the world. Clicking on a specific continent or country zooms in for a closer look. The dark band shows where in the world it is between 6 PM and 6 AM. To search for a specific city or country, click in the compass.

The inset at the upper left shows the screen that was zoomed in from. Clicking on a specific area in the inset will move to that area. Clicking on a country in the main map will zoom in on that country.

The main feature of the Climate card is the Celsius/Fahrenheit converter on the upper left. Enter the temperature you want to convert in the appropriate box and press Enter — the answer will appear in the other. Note that all temperatures in the charts are in Fahrenheit for all countries.

The Emergency card lists hospitals, embassies, police and fire information with local phone numbers which can be selected and dialed with the telephone button in the upper right.

with a dark band showing the places where it's between 6 PM and 6 AM. In the upper right is a clock showing your time, and in the upper left are icons for Home, Help and for finding a specific city or country.

To get to a country of interest, you can click on it on the world map, or click on the compass icon and then enter the name of the country or capital city you want to find. To look at Canada, for example, you click on it on the world map and *Business Class* zooms in to a map of northern North America. Click on Canada again and *Business Class* zooms in to a map of Canada, showing major cities and a row of icons representing the categories of information available. To move to a neighboring country, in this case the United States, you can just click on it on the map, or click in the inset map of North America to zoom back out to the map of northern North America. And that's all there is to using *Business Class*. It's simple and intuitive, and has an extensive help facility always available with a click on the question mark icon.

Business Class has a secondary function as an itinerary planner. This function is predominantly manual (i.e., you have to type in all the information), but *Business Class* will store it for you and print it out. You just tell *Business Class* your name and the dates of your trip and it creates an itinerary card for each day of the trip, with space for three airline flights and corresponding car rentals, and for one hotel reservation. When you have filled out your itinerary, you just click on the Print button and *Business Class* asks if you want to print all cards or just those with information entered, then you get the standard *HyperCard* print dialog with options like one card per page or faster LaserWriter printing.

Overall, *Business Class* is attractive and very well designed and executed. And there are useful small touches, such as the blank button on the country cards which can be used to add your own button, to access another *HyperCard* application, for instance. Unfortunately, if you're like most business travellers and most of your travel is within the United

"Draw it again, Sam..."

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produce spot color separations with ease or extend a single drawing into an animated series. You can even import a drawing and work over it or behind it without touching the original. Save or print the drawing layer-by-layer or as a whole. The possibilities are endless!

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"Draw It Again, Sam" uses the Macintosh's drawing modes to their fullest potential. Your objects can be in opaque, inverted, clear, or erased modes. You can experiment with overlaying transparent colors and patterns, you can even extend your drawing skills beyond the basics and generate an endless set of special effects. The countless colors and shapes achieved by this program are breathtaking.

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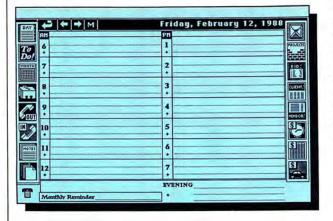
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P.O. Box 850, Two Davis Avenue
Frazer, PA 19355-0915
1-800-234-0230

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Macintosh SE

HyperBusiness

The Day card is the center of *Focal Point*, and *Focal Point* automatically opens to the current day's Day card. While only the three lines display at a glance, by clicking on the hour an additional twenty lines can be entered. The Day cards can be browsed through a day, week, month or year at a time.

There is a To Do card for each day. As items are done, you check them off. At the end of the day, clicking on the "Carry Over" button will move all unchecked items onto the next day's To Do card.

The Month card is a monthly calendar. On each day there is a two-line area for brief notes. Clicking on a date will take you to the Day card for that date.

book, to-do list, monthly calendar, phone and address book and dialer, phone log, notepad, document launcher (for those times you need another application), deadline tracker, project management system, proposal and bid tracker, client data base, client meeting tracker, vendor data base, vendor meeting tracker, expense tracking system (including automobile expenses) and time sheet system. Each of these functions is provided by a separate stack, and the stacks are logically linked for simple navigation from one to another.

Focal Point's main shortcoming is that while it provides all of these functions at the desk, many people find they need some or all of these functions when away from the office. *Focal Point* can print out its cards of information, but any changes made away from the office will have to be reentered back at the desk, and it is not very practical to print out the entire phone directory, even four cards to a page. So for salesmen and other field-oriented types, the old familiar DayTimer may be more useful. But for desk jockeys and managers, *Focal Point* can replace a lot of scraps of paper and notepads.

FOCUSING YOUR ENERGY

Like *Business Class*, *Focal Point* is fairly intuitive and easy to use, although because of all the links between the different applications and the sheer number of functions, it may take some time to get used to. Also like *Business Class*, *Focal Point* comes with an Installer stack that performs some set-up functions and places a *Focal Point* button on your Home card. Once in *Focal Point*, the available functions are buttons down the left side (and sometimes the right side) of each card. Because there are more *Focal Point* applications than there are buttons, *Focal Point* comes with a button customizer as part of its help facility so you can choose which applications are in which buttons.

Focal Point can be overwhelming at first, due to all its options. If you've been using the Address and Datebook stacks that come with *HyperCard*, you should easily adapt to *Focal Point*'s Daily, To Do, Monthly

States or repeated trips to one country which you already know fairly well, you'll have little use for *Business Class* other than as an itinerary planner, which can be used for domestic travel. If you do visit strange countries from time to time, though, this is an excellent tool to help you plan your trips. If there were a United States version for domestic travellers as well, *Business Class* would be useful to a broader range of business

travellers; for world travellers, the current version should do fine.

GETTING TO THE POINT

While *Business Class*' utility is limited by its being a one-note song, *Focal Point* is the Swiss Army Knife of business productivity software. For business users of the Macintosh who spend their days at their desks, *Focal Point* may be one of the only applications they need. It's an appointment

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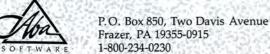
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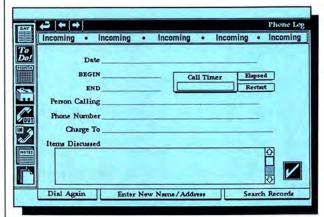
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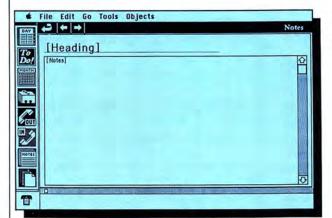
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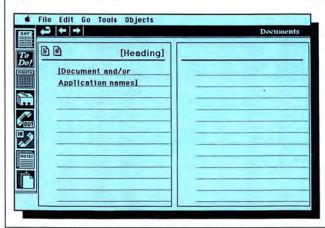
Focal Point's Directory stack is a souped-up version of the Address stack that comes with *HyperCard.* Up to three numbers can be listed for each entry, and you can make notes about the person or company. When you dial, a new card is created in the Outgoing Phone Log stack.

The Incoming Phone Log works similarly to the Outgoing, although you must fill in more of the information. You can even create a Directory card for the caller.

The Notes cards are for free-form notes. Each card has its own heading and room for plenty of notes.

The Documents cards let you install applications and documents so you can launch them from *Focal Point* and move to *MacWrite,* for example, then return.

and Directory stacks. As part of *Focal Point*'s Help stack, in fact, there's a button that will automatically import any entries you have in *Hyper-Card*'s Address stack into *Focal Point*'s Directory stack, and it's fascinating to watch it in action.

The stacks comprising *Focal Point* are all linked, sometimes in interesting ways. For example, when you use the Directory stack to dial a phone number, *Focal Point* automatically creates a card in the Outgoing Phone Log stack with the current date and time and the number dialed. There is a call timer and a notepad for entering the items discussed. The Incoming Phone Log lets you create a new Directory entry for the caller at the touch of a button.

The data base functions of *Focal Point* are useful whether you run a small business or work for a big business. The Client Records and Vendor Records stacks are each linked with their respective Meeting stacks, and are both linked with the Projects stack and the Proposals and Bids stack. Project Records are made up of a Project Summary card, a Project Specifications card, the Labor Worksheet, the Materials Worksheet, a Follow-Up Tasks card, and the Invoices and Payments card. The Deadlines stack gives a summary of all the follow-up dates in the proposal and project records. For small projects where a separate project management system is overkill, *Focal Point* offers similar tracking capabilities without all the bells and whistles (it doesn't draw PERT charts, for example).

Of special interest to the business user is the detailed expense tracking system that is part of *Focal Point.* The Weekly Expense Summary is a minispreadsheet summarizing the information entered in Daily Expense Detail and Entertainment Expense Detail cards. There is also an Automobile Expense stack, but it is unfortunately not linked with the other expense stacks, so if your company is one that puts auto expenses on normal weekly expense sheets, you'll have to transfer the information yourself. This is the only drawback to an otherwise excellent expense tracking function.

BOOK LEARNING

Business Class comes with a brief but thorough 48-page manual, and a small, easy-to-use Help stack. In fact, *Business Class* is so intuitive that almost half the manual is dedicated to setting it up, installing it on hard disks and a general overview.

Focal Point, since it is more complex than *Business Class,* comes with a more comprehensive 146-page manual which covers all of the major functions of the programs and has an extensive reference section. *Focal Point* also comes with a much larger and more powerful Help stack, which offers some major assistance such as the Address stack import function and the button customization feature described earlier.

GETTING HELP

Activision offers telephone support for both products, and the stacks' author, Danny Goodman, is a frequent visitor to online circles such as CompuServe's MAUG, and can offer his assistance for more thorny problems. The fact that the stacks are all open for inspection and modification may make future updating of the products easier as well.

THE BOTTOM LINE

Business Class is a fascinating piece of work, with attractive artwork, a simple intuitive interface and a large amount of data pleasingly presented. Only the absence of a U.S. domestic version keeps it from being universally required by the business traveller. For globe-trotting executives, *Business Class* is a must.

Focal Point is a masterpiece. Danny Goodman has said that it is something he always wanted to develop but that he could never find the proper vehicle to allow him the free-form linkages necessary. He found the vehicle he's been searching for in *HyperCard,* and has done an outstanding job implementing his vision. He also had excellent assistance from Bill Atkinson and Dan Winkler, the fathers of *HyperCard* and HyperTalk, which certainly didn't hurt. If you run your business from your desk, *Focal Point* is a can't-miss proposition. It's only people who spend their days out in the field,

like salesmen, who won't get full use out of it, and even they will find its record-keeping functions such as expense tracking and client data bases useful for those times they are back in the office. Consultants, lawyers and anyone else on an hourly billing basis will be able to get maximum use out of *Focal Point* with all its time tracking features. Even if all you need is a phone directory and calendar, *Focal Point* is worth the money.

ROBERT WIGGINS IS MACUSER'S CONTRIBUTING BUSINESS EDITOR AND THE EDITOR AND PUBLISHER OF THE MACINTOSH BUSINESS LETTER.

MACUSER RATING
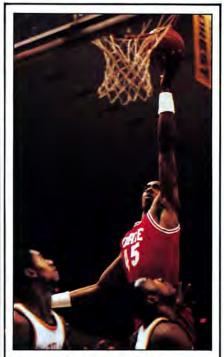
Business Class ♥♥♥½

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	■	■	■	□
Performance	■	■	■	□	□
Support	■	■	■	□	□
Consumer Value	■	■	■	□	□

Comments: World travel information and itinerary planning at the click of a mouse. **Best Feature:** Intuitive and attractive interface using maps to locate countries of interest. **Worst Feature:** Lack of United States domestic travel information makes it useful only for frequent world travellers. **List Price:** $49.95. Published by Activision, 2350 Bayshore Parkway, Mountain View, CA 94043. (415) 960-0410. Macintosh Plus with at least one megabyte of memory and *HyperCard* required. Not copy protected.

MACUSER RATING

Focal Point ♥♥♥♥½

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	■	■	■	■
Performance	■	■	■	□	□
Support	■	■	■	□	□
Consumer Value	■	■	■	■	■

Comments: Complete office system in a set of interrelated *HyperCard* applications. **Best Feature:** The use of *HyperCard*'s linking ability to automatically transfer information between applications. **Worst Feature:** Limited output capability (actually a *HyperCard* shortcoming). **List Price:** $99.95. Published by Activision, 2350 Bayshore Parkway, Mountain View, CA 94043. (415) 960-0410. Macintosh Plus with at least 1 megabyte of memory and *HyperCard* required. Not copy protected.

Move Over Machiavelli

Trust & Betrayal: The Legacy of Siboot takes place in a Machiavellian world where nice guys finesse last.

BORED WITH THE COMPUTER GAMES? Tired of firing missiles and particle-beam weapons at the same old alien spacecraft? Wandered in musty mansions collecting goodies for so long that you can fight off every monster ever dreamed up? Gobbled your way through so many mazes and chased gorillas up so many ladders that your hand traces the patterns in your sleep? Flown so many simulators that the only challenge left would be pushing the mouse around with your nose?

If so, it's time to check out Chris Crawford's *Trust and Betrayal: The Legacy of Siboot,* a game so different in style and play that it's impossible to compare it to any existing computer game. Rather than testing your skill as a trigger-happy marksman, or your ability to solve obscure logical puzzles, *Trust & Betrayal* pushes you to your limits in that most basic of human skills — political intrigue. When you enter the world of *Siboot,* you'd better be equipped with Freud, Machiavelli and some good old down-home "people sense."

TRUST BUSTING

The game is built around an elaborate science fiction mythology, romantically detailed by Crawford in a novella that accompanies the game. Many years ago, the Seven Species of the planet Lamina decided to colonize their moon, Kira, a barren ball of rock barely capable of supporting life. Idealistic young representatives of each species were sent off to Kira in a spaceship and it was hoped that they could learn to live together in peace (a goal that had escaped the uneasy home planet).

Shortly after the colony was established, a nasty diplomatic incident triggered a limited nuclear war back on Lamina, and the colony was cut off. There was a brief period of rioting on Kira, but the handful of colonists soon coalesced under a makeshift government led by a creature named Siboot (pronounced "sea-boot").

Siboot's great gift to the colonists was the discovery of a primitive form of telepathic speech that could cut through the barriers of language that had divided the ill-fated Laminans. He called the language "eeyal," and the colonists quickly set about developing their mental skills as they struggled to scrape out an existence in the desolate Kiran environment.

When Siboot died, he left behind a structure for a type of democratic monarchy. The new leader was to be the most fluent speaker of eeyal in the community, chosen by a process of mental combat among the strongest eeyal speakers of each of the seven species. That way, the most gifted speaker would be sure to lead the colony and inter-species hostilities would be kept to a minimum as each species would have a fair shot at the crown.

So much for history. The game opens several generations after Siboot's time. The most recent leader has just gone to the Great Beyond and the seven acolytes, one from each species, are preparing to slug it out — mentally — for the top job. You're Vetvel, one of the contestants, a young Jomkar who looks like a fur-bearing pagoda with ears. You're up against six fierce competitors: Skordokott, a serious, pragmatic, alligator-like Tayran; Wiki, a feline Ripi with a taste for practical jokes; Kendra, a fickle and imperious young Klast woman with a horse face; curmudgeonly Gardbore, a middle-aged Frem who looks like a cross between a dog and a lizard; Zubi, a pleasant humanoid Srol who loves everybody; and Locksher the Lockweel with his pleasant demeanor and a head rather like a camel's.

BY EZRA SHAPIRO

Move Over Machiavelli

The combat is a kind of scissors-paper-stone game, only you play with mental auras called tanaga, katsin and shial. The three auras have a circular order of precedence — tanaga beats katsin, and katsin beats shial, but shial beats tanaga. Every night your spirit soars off to the Land of the Auras. You choose an aura with which to attack another contestant; if your choice is ranked higher, you win one of the lower-ranked auras. The winning player must wind up with exactly eight of each aura, and each player starts out with different deficiencies. The goal is to make up your missing auras, one by one, until you have a perfect set. The game ends when that occurs.

If the combat were simply a matter of playing scissors-paper-stone, *Trust & Betrayal* would be merely a computerized bore. However, the real meat of the game occurs during the daylight hours between combats.

ANOTHER DAY, ANOTHER AURA

Every morning, you wake up knowing one aura count for each of the other players. Your mission is to find out as many of the aura counts that you don't know as you can. You do that by trading information with the others. In that sense, *Trust & Betrayal* is a negotiating game. If you want to learn Zubi's shial count, and Skordokott needs the data you have about Kendra's tanaga count, the two of you can hatch a deal. But each character has a distinct personality, some of which is based on interaction with you before the game begins, but much of which is shaped by the way you play.

Here's how it works. Let's say you need information about Wiki and Locksher to help you decide which to attack that evening. Gardbore is the only player who knows the answers, and he has questions of his own about Skordokott and Kendra. The deal would be a natural, but Gardbore neither likes you nor trusts you. He's learned that you've betrayed his confidences in the past, and he's hopping mad. How do you negotiate the trade?

You could flatter him, which would increase his distrust. You could try to cow him into dealing by threatening him, but he's no sissy and he might just laugh at you. Or

you could try to cultivate the relationship, offering a little flattery to build up his ego, and perhaps increasing his trust by promising neither to attack nor betray him. But should you go back on your promise of non-betrayal, and use information about Gardbore to find out something else, you're risking a lot. Should Gardbore learn of that betrayal, he might never tell you anything again. And losing that one item of information that Gardbore won't tell you at a critical moment could put you in a deep hole.

Each of the combatants has different needs, different friends and a different view of Vetvel. And they react in conversation according to their personalities. For example, flattery is not particularly effective with flinty old Gardbore, who's suspicious of unwarranted compliments. But Zubi is young and impressionable; insincere flattery will not only increase her affection for you but lure her into trusting you. Flighty Kendra might listen to your blandishments, tell you she loves you madly, then slam the door in your face before you've gotten anything out of her.

And you have to remember that you're not the only player in this game; the other characters are going for the same goal. All of them are out there, talking to each other, making and breaking deals and changing their opinions behind your back. If your best friend Skordokott can win the game by breaking a long-standing oath to you, he'll do it. And if you, loyally, refuse to desecrate your promise to Skordokott when someone else offers you precious data, you may find that your fidelity has cost you the game.

So *Trust & Betrayal* is a game of strategy on several levels. You have to be sharp at interpreting the personalities and the prejudices of your computerized antagonists. You must be able to assess the tactical costs of, well, trust and betrayal. And you have to be a steel-nerved gambler capable of choosing the right weapon when you get down to combat.

PARLEZ-VOUS EEYAL?

Trust & Betrayal is played in eeyal, Kira's telepathic language.

The basic playing field of *Trust & Betrayal: The Legacy of Siboot*. This screen shows a conversation between Vetvel and Gardbore. The bar on the left side displays icons that you can click to build primitive sentences in eeyal. The region at top center displays status information: time of day and where you are (Gardbore's house, talking to Gardbore). The panel immediately below it displays Gardbore's emotional state. The bar graphs assess his level of fear, trust and love for you. As all the graphs show low totals, it's obvious that Gardbore regards you as insignificant, slimy and unpleasant. The stylized face represents Gardbore's facial expression, and serves as another clue to his mood. The two panels on the right side of the display are for eeyal sentences; the top for you, the bottom for the other guy. You've just finished making a deal; Gardbore has given you some information.

Move Over Machiavelli

Chris Crawford

Gardbore

Kendra

Locksher

Even after years of study, it's still rather unsophisticated, consisting of a limited number of nouns, verbs and modifiers. The syntax is also quite simplistic. If you wanted to ask Skordokott if anyone had snitched on you, "Vetvel ask Skordokott who betray Vetvel," would be eloquent phrasing in eeyal. As such, eeyal is easily depicted with icons on a Macintosh screen (what a surprise!).

The game is divided into days and nights. You wander around the tiny Kiran community, visiting the other competitors and chatting with them in eeyal during the daylight hours. Each conversation takes a measurable amount of time, shown in an on-screen status box, and you'll have to move quickly if you want to visit any of the six other players more than once each. As some negotiations can become protracted (if, say, you're trying to charm a reluctant character into betraying a friend), watching the time is a critical element in playing the game.
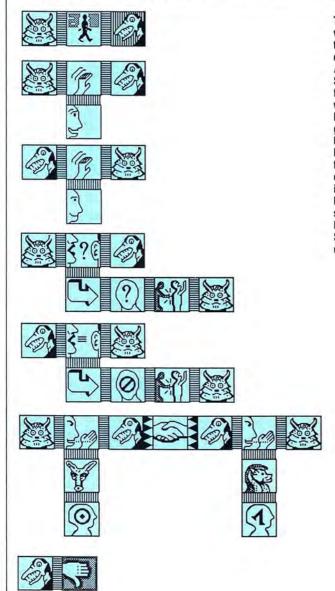
In every situation, *Trust & Betrayal* presents you with a selection of appropriate icons from which to choose. You have greeting icons, reaction icons, deal-making icons and icons for each of the characters. Holding the mouse button down when you select an icon shows the translation for it, usually no more than one or two words. There's no dragging; *Trust & Betrayal* builds sentences for you as you click icons. When a sentence is complete, you can click a button labeled "do it," another to cancel the whole sentence or a third to backspace over the last icon you chose. As an aid in your linguistic studies, you can opt to have *Trust & Betrayal* provide a translation window, which displays full sentences in grammatical English; after a few hours, you'll find eeyal easy enough that you'll turn it off.

This is how a dialog works in eeyal, the telepathic language central to *Trust & Betrayal:* You go to visit Skordokott. He's your friend, so you greet him warmly. He's nice, but a bit more reserved in his greeting to you. You ask him if anyone has betrayed you; he replies that nobody has. You offer to trade information: You'll tell him about Gardbore's shial count if he reveals Kendra's tanaga count. Skordokott rejects your deal.

OH, PROMISE ME

There are three important types of status screens available from pull-down menus. The first gives you the status of all the characters — a chart shows you where each character is at the moment and another displays what you know about the characters' aura counts. The second screen is called "Recall Today." It keeps track

Move Over Machiavelli

Skordokott

Vetvel

Wiki

Zubi

of whom you've betrayed, who's betrayed you and any promises made either by you or to you. The third kind of screen gives you a full analysis of each character. It shows a portrait and a descriptive paragraph. When you first start playing, these screens seem unimportant, but they contain vital information that can get lost in text. The last few lines of the prose paragraph detail the character's relationships with you and other characters. These change over the course of the game, and provide your only clue to agreements to which you're not a party. If Zubi's view of Locksher changes from love to dislike, you can bet that Locksher has betrayed her and she's far more likely to betray him in return.

A key component of the basic game screen could best be called a "personality box." When you're chatting with one of your opponents, it shows a stylized facial expression and three bar graphs. The expression is based on human features, rather than the extraterrestrial ones owned by the Kirans. The bar graphs, marked with the symbols for tanaga, katsin and shial, indicate fear, trust and love, respectively. These bars change perceptibly as you converse; you know that a character's attitude toward you is changing, for better or worse, as you speak.

NIGHT GAMES

The icon-oriented format continues in the night game, but it's much simpler. You choose a victim for your attack, and the aura you wish to use, and that's it. The game shows you your victim's choice, and indicates whether you've won or lost. Sometimes a character will choose to attack you, in which case you'll be shown what you know about that person's aura counts as well as your own counts. Again, you choose your weapon and watch the outcome.
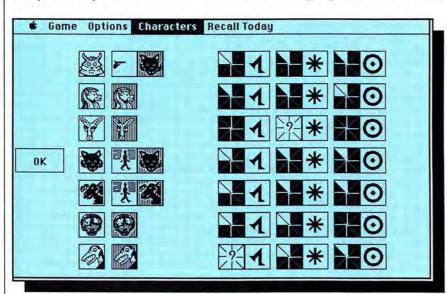
Trust & Betrayal offers three levels and three lengths of play. Of the easy, medium and hard levels, the only one with any real challenge is the hard level, where your opponents apply what they know about you in choosing the auras they'll use to defend themselves or attack you. Neither the easy nor the medium level gives them a fighting chance; they're in the dark about your auras. Those two levels are differentiated by the sophistication of the personalities. On the easy level, you can assume you're dealing with drooling morons; up the ladder, you start noticing subtleties.

HOW LONG, O LORD?

Length of game is absolutely straightforward. At the short length, all characters are missing only two auras. At medium, they're missing four and at long, six. Chris Crawford sees the long, hard game as the truest version of *Trust & Betrayal,* with the others being training exercises for it, but it's possible to enjoy a rousing game at the medium length, hard level.

In my experience, the short hard game is over too quickly to develop any real texture. The medium length generally runs me from 1½ to 3 hours. And I once played the long, hard game for an 8-hour stretch before achieving final resolution, but

When you start the day, you know one piece of information about each of the other characters. By the end of the day, you should have learned as much as you can by trading your knowledge. In the second screen shot, only two aura counts are still unknown. As you promised not to attack Skordokott, the missing count for him is irrelevant. And you can deduce the missing number for Gardbore — this is the first turn of a medium-length game, in which all characters start out lacking four auras. As Gardbore has a full count in both tanaga and shial, obviously he's four short in katsin. You can go home and relax before the evening's combat; more dealing is unnecessary.

Move Over Machiavelli

Tanaga

Katsin

most of my games at that level have averaged between 3 and 4 hours.

OY, OY
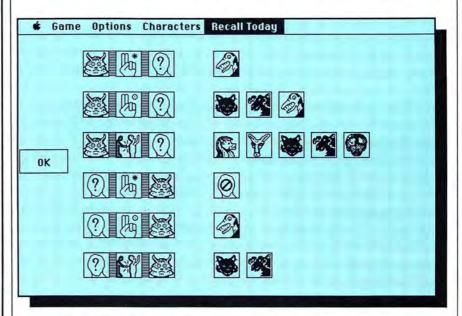
There is no question that *Trust & Betrayal* is the work of a mad genius. Chris Crawford's personality and spirit pervade every element of the game. In fact, Chris himself shows up every so often as you play, in the role of *deus ex machina*. As a result, your enjoyment of *Trust & Betrayal* depends to a large degree on whether you buy Chris' view of the universe. If you can swallow the convoluted story line without asking too many questions, and if you enjoy psychology, rhetoric and conversation, you'll love the game.

If, on the other hand, you've got a brain that demands a solid logical explanation for every nuance of game play, you'll be irritated beyond belief. [*Editor's Note: And if you have that kind of brain, you probably don't play many computer games, anyway.*] The underlying structure does not bear close scrutiny; it starts breaking down after only a little poking. Your character, Vetvel, is a translator who knows all seven languages of Kira. Why does Vetvel make deals in eeyal? Wouldn't it be more comforting if Vetvel spoke to each contestant in his or her native tongue? And why, if the goal of the peace-loving Kirans is to choose the best eeyal speaker, does this competition concentrate on political skills and double-crossing rather than eeyal?
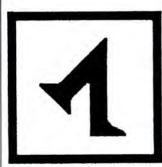
My, my! You've been busy. This 'Recall Today" screen helps you keep track of your activities. After a full day of dealing, you've promised not to betray Skordokott, and not to attack Skordokott, Wiki and Locksher. Sure enough, you've managed to betray every character in the game except Skordokott. The only pledge you've received is a trivial promise from Skordokott not to attack you, and two of your friends, Wiki and Locksher, have stabbed you in the back. Could it be that the ease with which you rat on other characters is costing you their help?

Shial

Wouldn't they prefer an unflinchingly honest, wise ruler to one who can backstab in cold calculation? I can come up with dozens of questions that attack the fabric of the fantasy that drives *Trust & Betrayal*.

I'll admit that I've gone through four phases in my reaction to the game. I was terribly excited when I ripped open the package; I like Chris personally, and his games hold out intellectual challenge far more enticing than any others for me. But as I began to play, I was struck with the weight of the superstructure behind the game. "This is hogwash," I thought. "Couldn't we give up the weird names, the sci-fi novella and all this nonsense about Kiran theology, philosophy and history?"

But as I played longer, I started to become mesmerized. The mental baggage of the conceit wasn't as burdensome as it had been a few days before. These alien characters — these people — were my *friends*. Skordokott became my buddy; I *cared* about him. I hated myself every time I betrayed sweet, trusting Zubi. I yearned for the day when Gardbore would tell me he liked me. Chris Crawford drew me into the web of *Siboot* even though I wanted to resist it. In spite of flaws, oddities and an idyllic view of Kira that could turn the strongest stomach, the game *worked*.

After playing the game constantly for about a month, I'm beginning to taper off, but that may have more to do with my perfectly normal need for variety rather than the game. I'm also developing tender spots on my mouse hand from constantly repeating the same motions to build my eeyal sentences. But, as one might say in eeyal, "Ezra like game. Ezra no bored. Ezra happy."

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Move Over Machiavelli

It's impossible to make comparisons about *Trust & Betrayal*. It's certainly a brilliant effort to expand the horizons of computer gaming; you're dealing with not one, but six artificial personalities who have been programmed so seductively that you forget they're not real. And once again, Chris has loaded a game with his random number generators so that no two games are identical; you'll face different obstacles and different personality profiles every time you play.

My only real warning is that *Trust & Betrayal* is a fairyland world that owes its existence to your ability to experience a childlike sense of wonder; you must suspend your disbelief just long enough for Siboot and his friends to work their magic. If you can't thaw enough to relive the thrill you got when you were handed your first balloon, steer clear. If you're willing to let your imagination run away with you, Kira can be a mighty nice place to visit. ▧

EZRA SHAPIRO, A CONTRIBUTING EDITOR FOR MACUSER, HAS BEEN A FIXTURE IN THE COMPUTER INDUSTRY FOR YEARS, KIND OF LIKE A RUSTY FAUCET OR A PORCH LIGHT. HE ALSO PUBLISHES A NEWSLETTER CALLED TECHNOLOGY AND ADVERTISING.

M A C U S E R   R A T I N G

Trust & Betrayal: The Legacy of Siboot

🐟🐟🐟🐟½

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ ■
On-Screen Help	None
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ ■

Comments: An entirely new sort of computer game that involves negotiating with six artificial personalities in a struggle for power. **Best Feature:** Icon-based pseudolanguage allows seemingly real "conversations" with story characters. **Worst Feature:** The premise is detailed and somewhat maudlin; the contrived setting may turn off the more logically minded. **List Price:** $49.95. Requires 512K. Published by Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667. Copy protected, but allows one reversible installation on a hard disk.

The QUEDessential Editor

MAN DOES NOT LIVE BY text alone. He likes to indulge in a diagram here, some boldface there and a halftoned photo thrown in for good measure.

Unfortunately, man has to communicate with computers that only speak text, the Esperanto of the computer world. The Mac owner down the street might not have *Word Perfect* and might not know how to convert from *MacWrite*. The programmer in the next town has a C compiler that only compiles text files.

The journalist who interviewed you sends her story to the local paper over Telemail, a system with no graphics support. And the mainframe computer at work requires a plain-text report in the same tedious format every Monday morning.

Time to buy MS-DOS?

No way! Time to get a first-rate text editor. Even though the people around you may not benefit from the

QUED/M can train your words to jump through hoops.

Mac's features and the features of your favorite word processor or page layout program, you don't have to suffer. With *QUED/M,* you'll have an easy-to-learn yet powerful text editor to create files only a compiler (or Telemail, or IBM or your mother) could love, and you'll create them in record time.

GET YOUR FEATURES HERE

QUED/M is a text editor, not a document processor. Thus it cannot support graphics of any kind. It also cannot support multiple typefaces, styles or sizes in the same document. You choose one font combination

for a whole file. You give up the subtle nuances of expression, but you gain the ability to communicate with almost any computer or daisywheel printer anywhere and to produce and manipulate text-only files without wading through complex style and format menus.

QUED/M is fast. Starting the program and opening even long documents are painless tasks, even with floppy disks. Once files are loaded, scrolling through them is immediate, since open documents are kept entirely in memory. Even getting out of *QUED/M* is fast: A user-definable Transfer menu quits and goes to any other application in a flash. Maybe the "qu" in the name stands for quick?

Speed is nice, but *QUED/M* also saves your time with a most impressive set of features. Paragon, the publisher, may have stopped short of adding the kitchen sink, but they remembered the automatic coffee-

BY LINDA CUSTER

The QUEDessential Editor

QUED/M macros are ordinary text files containing commands for the program to replay. Any macro can be assigned a command key to make it easy to run.

Instead of the usual Macintosh Open dialog box, *QUED/M* presents you with a useful window that stays around all the time. It's great for opening multiple documents, and you can cut the names of the listed files and paste them into another document.

QUED/M's change dialog supports not only words but abstract patterns so you can find telephone numbers, control characters and other obscure things.

maker that grinds the beans and brews the coffee at exactly 6:10 AM every morning.

Cut, Copy and Paste are enhanced: Intelligent Cut and Paste keeps track of whole words when they're selected by a double click, and automatically moves or deletes the spaces around words only when appropriate. Undo can jump through any level of mistakes and back again. (You set the maximum number of levels Undo will remember, as high as 300 or more if you

like—and if you have the necessary memory.) *QUED/M* even maintains 10 separate clipboards for holding form paragraphs or letters or for quickly rearranging major portions of your text. (Clipboard 0 is the standard Macintosh Clipboard that persists across applications. Anything in the other nine clipboards will be lost when you leave *QUED/M*.)

Working with multiple files at one time couldn't be easier. *QUED/M* supports stacking and tiling of win-

The QUEDessential Editor

dows to make small screens (and even large ones) bearable. You can have as many windows open as memory will allow. Most commands that work on one file can be performed on all open files with an extra keystroke or two or the selection of a menu item. You can even search and replace in unopened files by adding their file names to *QUED/M*'s multi-file search list — handy when you forget into which file you've put something.

Names or numbers can be used to mark any position in a file. Later, you can jump immediately to that position by searching for it. You can also get a grand view of your documents by splitting their windows into horizontal and vertical panes. Disable automatic word wrapping if you like, so explicit carriage returns are required to separate lines. Make any selection all upper- or lowercase, capitalized or inverted case, or hide it so it won't be viewed on the screen or printed until you unhide it.

Programmers will appreciate the built-in functions to balance, count or display parentheses so that logical and mathematical expressions aren't left hanging. They'll also appreciate *QUED/M*'s SORT LINES and COMPARE commands, the SHOW INVISIBLES and SHOW ASCII commands — so you *really* know what's in a file — and the ZAP GREMLINS command that removes all special non-text characters that many compilers and mainframe computers can't understand. After all, it's what you can't see that'll hurt you.

An info window, available for every file, displays a line, character, and word count. A user preference dialog allows the option of saving a backup copy of all files and an automatic file save after a certain number of keystrokes. Users can also choose to have their files saved alternately between any two disk drives. These are features that all word processors should, but often don't, include.

Printing from *QUED/M* is flexible and efficient. Background printing is supported on the ImageWriter as long as you don't leave the program, so you can print one document while you compose another. Now that background printing on

the LaserWriter is supported by System software, LaserWriter users are covered as well. On both printers, margins are selectable, and a header, including page, title and date, can be added.

EXPRESS YOURSELF REGULARLY

Most of the time, *QUED/M* searches and replaces just like any other word processor. You can make searches case sensitive, or you can ignore case altogether. You can paste in special characters, too. However, *QUED/M* can go far beyond simple searching because it supports the same regular expression set used by mainframe and micro UNIX systems for pattern matching.

Regular expressions aren't for the timid. If you don't think you'll feel comfortable with strings like :<[^A-Za-z0-9—]:>[A-Za-z0-9—], you don't ever have to use them. If you like decrypting code, though, forge on ahead. The journey might well be the reward.
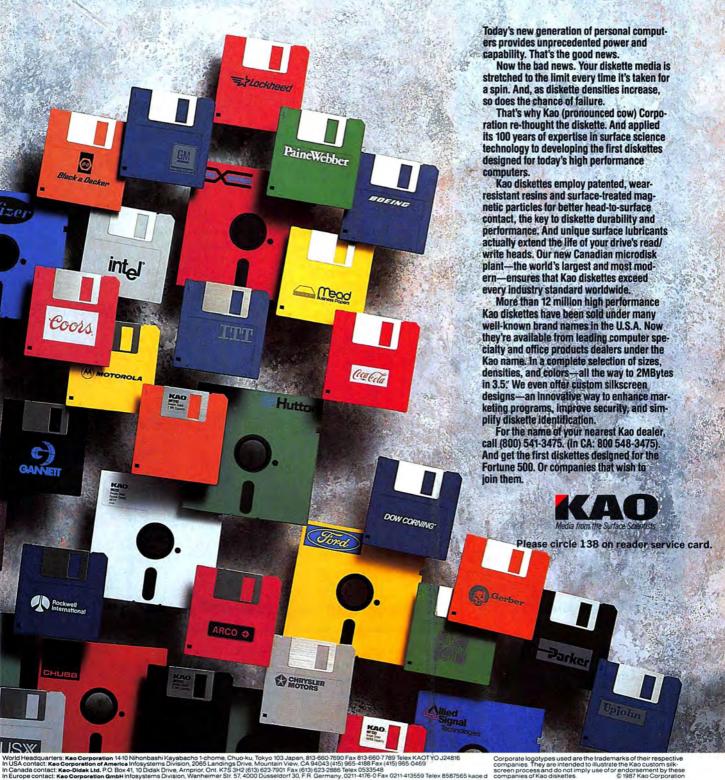
By stringing along special regular expression symbols and selecting the Regular Expression box in the search dialog, you can tell *QUED/M* to look for patterns like phone numbers. Just search for any space or return followed by three digits, a hyphen, four more digits and a space or return. You can even use this method to determine how many phone numbers a document contains. Likewise, you could look for Zip codes or part numbers.

M IS FOR MACRO

All of *QUED/M*'s commands can be accessed from macros, "autopilots" that allow you to do the same series of things with files over and over again. You might use macros to open and close files, create form letters, move text from one file to another or manipulate the clipboards. Macros are simply text files that contain lists of instructions. You can teach *QUED/M* a macro by typing all the necessary commands into a text file or by entering a learning mode where all your actions are recorded for later playback.

Macros you program yourself might be useful for routine tasks like analyzing or creating reports. Ob-

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For the name of your nearest Kao dealer, call (800) 541-3475. (In CA: 800 548-3475). And get the first diskettes designed for the Fortune 500. Or companies that wish to join them.

KAO
Media from the Surface Scientists

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The QUEDessential Editor

Another Game in Town

QUED/M isn't the only automatable text editing game in town. It has some competition from a text editor called *MEdit*. While *QUED/M* has many more features, *MEdit* is no slouch. It was written by Matthias Aebi of Zurich, Switzerland. The latest version available at press time is 1.5.

MEdit supports files of unlimited size in a unique way. When files are too big to fit in available memory, they are broken up automatically into sections. You page through sections by clicking in special added areas above and below the normal vertical scroll bar, and your whole long document flows together almost transparently. This feature will become more important as *MultiFinder* and new *System* releases place greater demands on available memory.
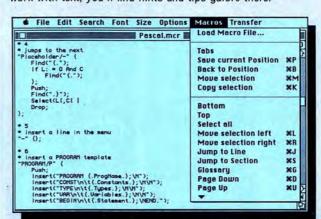
You can write automated macros by typing them into a text file. They are more limited than the macros in *QUED/M*, since options like removing control characters and working with multiple clipboards aren't available, but they're adequate for most jobs. The macro language reads much like Pascal and can probably be picked up by programmers more quickly than *QUED/M*'s. *MEdit* macros must always be written from scratch, though, since you won't find an automated Learn mode. Beginning with version 1.4, macros must also be processed through a separate compiler program before they can be used in a program. While this speeds up macros considerably when they're run, it slows down creating, debugging and changing them. Since older versions of *MEdit* ran macros from text files more conveniently, a built-in compiler or an option to still run text files would be welcomed.

Normal Find and Replace are supported, but they require that you capitalize words as they are found in the document. Searching for "*MEdit*" is different than searching for "*Medit*." Also, the SEARCH and REPLACE command will not search for for patterns unless those commands are placed in a macro file.

MEdit doesn't support Undo, so frequent backups of files are a must. Cut and Paste aren't "intelligent," and cursor (arrow) keys aren't supported. Many of *MEdit*'s shortcomings can be overcome by macros, though, and macros can even be activated from any key sequence you desire.

If you think you'd like to use a text processor but don't know how useful it might be, MEdit is a great program to test drive. You can get it from your local user group or on-line services and bulletin boards. It's small — only 40K — and you can't beat the price. The editor, compiler, documentation and example files are free, and for $25 to the address in the About box, Matthias will send you the TML Pascal source code to *MEdit*. If you're doing any work that involves programming the Macintosh to work with text, you'll find hints and tips galore there.

MEdit's macros are text files. The macro language resembles Pascal and is easy to learn.

tain stock price information from a central computer and use regular expressions to find the issue names and prices. Copy that information and paste it into a form letter by searching for the string {*price*} and replacing it with the current price. Run through this procedure once in learn mode, then edit the procedure to work for any generic day's prices. You've completely automated the report, so next time you just hit a key and sit back. Usually a mixture of performing a procedure in learn mode and then editing the procedure later works best.

ONE SIZE FITS ALL

Paragon wasn't too happy with the size of the potential market for a text (only) processor. They decided to market *QUED/M* as a personal productivity and data base tool as well. The program comes with excellent prewritten macros to handle your address, phone and mailing lists and your appointment calendar. It'll track and extract citations in scholarly writing or convert your data base of personal contacts to a standard, readable format. You just open the listing of supplied macros, choose the ones you want to use, and give them command key equivalents if you like.

> **P** *aragon wasn't too happy with the size of the potential market for a text (only) processor. They decided to market QUED/M as a personal productivity and data base tool as well.*

As nice as these prewritten macros are, don't buy *QUED/M* to replace *Sidekick* or *FileMaker Plus*. In a pinch, the macros will do the job, but they bring back the days when dedicated office word processors were used to store data. You simply can't beat data bases for doing what they do best. Buy *QUED/M* for its text editing, *then* enjoy the macros you find useful.

While the more elaborate data base macros might be only marginally useful, many of the smaller text-oriented ones are great. You'll find macros already written to transpose characters, clear all 10 clipboards at once, count the number of words, sentences and paragraphs in your documents, produce an alphabetical list of all the words in a document

and even add all the figures in a column for you. Use all the time you save to browse through the macros at your leisure and learn how the language really works.

One gotcha on file size: If you routinely need to view very large files, or work with a large number of files at the same time, be aware that *QUED/M* needs enough memory available to store all current files. It also needs some room to maintain its clipboard and undo buffers and other housekeeping. Current versions of *QUED/M* cannot read parts of files from a disk, and you may find files that must be opened instead with a disk-based editor like *MacWrite* or Microsoft *Word* 3.0. Now that Apple has released *MultiFinder* and applications often run in relatively small partitions, Paragon may be forced to release a disk-based version.

HITTING THE BOOKS

QUED/M comes with a 120-page manual which includes an index. The index is repeated on disk so you can search it from inside the program; a nice touch. It also comes with text help files on regular expressions and macro commands. These files are opened directly like any other text file and are fully editable. While being able to search help files is a welcome feature, users are not prohibited from changing the contents of the help files or from deleting their contents altogether. A more standard read-only on-line help system available from the Apple menu would be more useful.

The manual is aimed at power users — programmers and experts. Its first six chapters detail all of *QUED/M*'s features except regular expressions and macro programming, and in total they take only 19 pages. Most users would benefit from a more complete discussion of how to get the most out of the program a short time. Probably most *QUED/M* users will be able to use the program right from the box but will never take the time to investigate its full potential. They won't even realize certain functions are available. A more inviting discussion of the program might help.

The chapters on regular expressions and macro commands, comprising the majority of the manual, are complete but difficult to navigate. The index is complete enough to point to the right page for most inquiries, but the manual's layout could be less cluttered. Perhaps separating out well-marked tutorial and reference sections would help users focus their attention more easily.
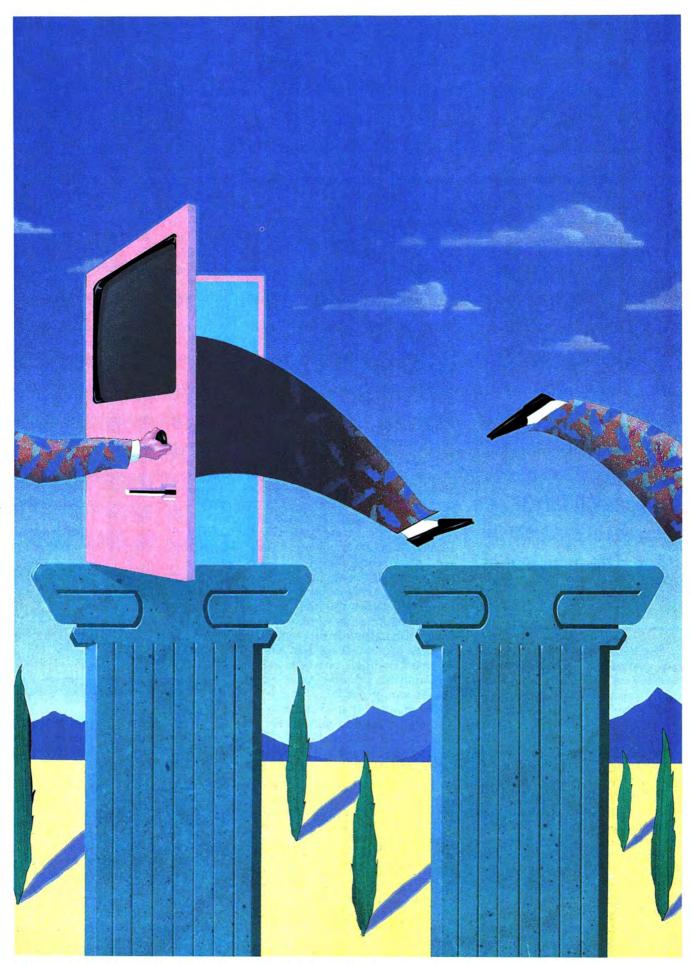
THE WORD'S OUT

Sure, your favorite word processor can save documents in text-only form, and desk accessories like *mini WRITER* and *MockWrite* can read and write text files for you. However, they all lack many features like (almost) infinite undo, multiple clipboards and a full macro facility. Many can't work with more than one file at once, and none have a sophisticated searching utility. Since *QUED/M* is reasonably priced, easy to learn and use, and supports well almost any text processing function, consider using it alongside your other programs. After all, other programs can open any text file, so you won't waste time importing and exporting files. Though you may need *QUED/M* for only a few of its features, you may soon make it your text processor of choice and wonder how you got along without it. ▨

LINDA CUSTER IS A PH.D. CANDIDATE IN BIOCHEMICAL ENGINEERING AT UC BERKELEY AND A MAUG SYSOP.

MACUSER RATING

QUED/M �½

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ☐ ☐
On-Screen Help	■ ■ ■ ■ ☐
Performance	■ ■ ■ ■ ☐
Support	■ ■ ■ ■ ☐
Consumer Value	■ ■ ■ ■ ☐

Comments: An excellent word processor for plain text with many useful extras. **Best Feature:** Supports a powerful programming language to operate on text documents. **Worst Feature:** Limits the size of documents to available memory. **List Price:** $129. Published by Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. (619) 481-1477 Version 2.01 reviewed. Version 2.04 released at press time. Not copy protected.

Screening Room

IMAGINE WORKING ON A SIX-PAGE *MacDraw* map of the United States, moving effortlessly through your work without once reducing or using a scroll bar. See yourself wielding full-page *Excel* spreadsheets and charts. Envision hoards of desk accessories neatly laid out on a 20- by 20-inch desktop. Imagine swiftly sailing through a *PageMaker* layout-...tabloid...double-page... at 100%... and imagine that you acquired this power for the price of a couple of video games. Science fiction? Stop imagining and go get it.

It's *Stepping Out*. It's software. It's the answer to the prayers of Mac owners who need a large screen display, but can't accommodate the bulk or expense of a large monitor.

Stepping Out converts your Mac's screen into a magic eye that you can move freely over your documents, as easily as panning a camera across a landscape. For graphics and layout projects, *Stepping Out*'s instant edge-sensitive scrolling lets you devote more time to *creating* your work rather than hopping around it. You can practically wave good-bye to those jumpy little scroll bars and Fit in Window views.

STEP THIS WAY

In the Mac universe, applications interface with us through windows of various sizes and properties. Most well-written applications, especially those of recent vintage, can use win-

Dreaming of a large screen display? Cheer up. You already own the hardware you need. Stepping Out provides the rest.

dows which are far larger than the Mac's screen. Normally, they sense that your screen is only 512 X 342 pixels, and they'll display just enough information to fill it. When you need to see other parts of your documents, you use the familiar scroll bars that tell your application to calculate and present a new view. This computed scrolling can be rather slow.

Stepping Out convinces every application that your screen has grown to say, 612 X 792 pixels (8.5 inches X 11 inches). It then reserves an area of memory large enough for such a screen which applications amenably fill with their output. You can still view only a portion of this large space, but to see a hidden area you just slide your mouse in its direction and *Stepping Out* instantly transfers the proper contents of the *virtual*

screen to your *physical* screen. The faster you mouse, the more space you traverse. Its speed and smoothness are sheer ecstasy. I've shown it to both Mac and PC lovers, and it's never failed to leave their jaws hanging.

Some applications don't allow you to enlarge their windows. You can still use the extra desktop space created by *Stepping Out* to lay out desk accessories without overlapping them, creating a more natural desktop arrangement than stacking and shuffling your telephone book, calculator, note pad, *Scrapbook* and what have you.

IT NATURALLY FOLLOWS

Stepping Out's basic talent is its ability to follow the cursor as it leaves the visible screen. This minor miracle adds auto-scrolling capabilities to applications which lack it, like *MacDraw*, and it easily outperforms the built-in auto-scrolling of applications like *MacDraft*, *Cricket Draw*, *SuperPaint* and *Illustrator*.

Stepping Out exhibits a similar talent during text entry. It instantly follows the text insertion pointer (I-beam) as it attempts to leave your view. You can thus use extra wide text windows and always see what you're typing. When words wrap around, your view zips back to the left margin of the document. This function is independent of the application you're actually using and it's

BY SALVATORE PARASCANDOLO

superior to the lateral scrolling provided by some word processors. It's a handy feature if you must compose wide text in true WYSIWYG mode, but I find that the normal 512-pixel window is best, because I can see entire paragraphs without scanning laterally.

If you plan, paint, illustrate, design forms, draw, draft or publish, you need *Stepping Out*. If you write, program, chart, spreadsheet and rely on desk accessories, it'll give your productivity a healthy boost. (If you mostly play video games, or are thrilled by watching a screen-saver in action, save your cash.)

STEP ONE

You install *Stepping Out* by copying it onto any disk. It occupies a modest 18K of space. Thereafter, you simply double-click its icon from the *Finder*. The first time you activate *Stepping Out*, it automatically begins to create a virtual screen with the pixel dimensions you last chose. You can halt the automatic process by holding down the mouse button and specifying a new width and height. If you activate *Stepping Out* with a virtual screen already in use, it will wait for you to enter a new size. *Stepping Out* also tells you how much RAM is needed for the screen you specify. It's that quick and easy to resize or remove the virtual screen for each application you use.
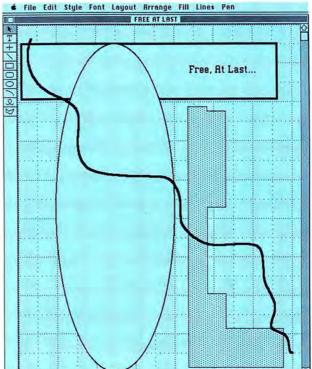
THE BASICS

You'll need a 512K Mac or better. *Stepping Out* uses about 84K of basic operating RAM, plus 648 bytes for each square inch of virtual screen, or 60K per 8.5- X 11-inch page. This roughly translates to 141K bytes for the equivalent of a Radius Full Page Display.

With a Mac 512K, you can free up RAM by reducing or turning off your RAM cache and/or RAMdisk. On a Mac with a megabyte or more, you must still pay attention to the screen memory size if you use a large cache or RAMdisk or *Switcher*. With 2 or more megabytes you can practically forget calorie-counting. Experiment to arrive at the set-up that suits your hardware, software, working style and project. Take care, howev-

er: Some applications and desk accessories may just hang, or crash when they run short of memory.

The few rare times I've crashed the

A Real Desktop.
You no longer need to keep your desk accessories in a jumbled heap. Take advantage of available screen space for tool and reference windows. You save shuffling time and can still see the information displayed in inactive windows.

Free at Last.
Freehand drawing truly flows in any application that supports full-page windows. In this drawing, all the objects were rendered in normal size in a few seconds, without regard to anything but the creation process.

System, I've found the greedy culprit at the keyboard, trying to squeeze too much into too little. *Stepping Out* is fundamentally bomb-proof. It

has to be. I've routinely used it with a RAMdisk, RAM cache on, *Switcher*, desk accessories and an interactive spell-checker all chugging away. It remains flawlessly active between applications, even if control switches to a *System* on a different disk.

IT LENDS A LENS

As if a large virtual screen were not enough, *Stepping Out* puts sixteen levels of split-screen magnification at your disposal using COMMAND-OPTION-2 through 16 — instant functional Fat Bits any time. Use this tool to make fine adjustments to technical drawings, scanned images or page layouts. If your eyesight needs a boost, you have a built-in set of spectacles. You can resize the portion of the Mac screen devoted to magnified view, from one-inch wide up to a full screen, by using COMMAND-OPTION-R and mousing left or right.
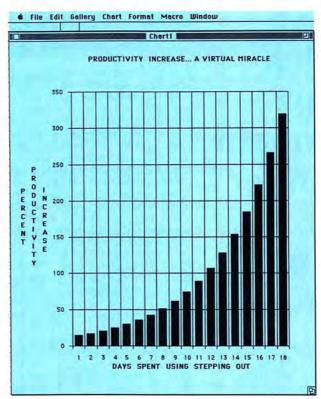
SEEING A SHRINK

Berkeley System Design hasn't forgotten that you'll occasionally need a bird's-eye view of your large screen. With COMMAND-OPTION-SPACEBAR, you'll get a split-screen Reduce to Fit view where the left side of the screen displays a normal-size section of the area around the cursor, and the right side shows most or all of the virtual screen, highly reduced. Two levels of reduction are available. Voilá, a *working* page preview mode for most of your applications. In both enlarged and reduced views, all your applications' tools are fully functional.

This may come as a shock to you, but your Mac shows you things in reverse video; black dots on a white background. "Normal" video is white on black. If you long for the world of normal video *Stepping Out* lets you invert the display using OPTION-COMMAND-B. This will give you a blueprint-like preview of your drafting work. I found it eye-soothing to periodically invert the display during word processing. Inverted Chicago font is rich and readable.

MR. BIG SHOT

A screen shot is an exact 512 X 342 pixel screen dump in *MacPaint* file format, titled "Screen 0," then

Hot On The Charts. *Excel*'s charts can grow in stature in the freedom of large screens.

Spreading Out. A wide view is great for entering data, and even better for using your data. In this *Excel* window, every click in the vertical scroll bar jumps you 48 rows. Selecting cells is faster, since more cells are visible in the larger window.

"Screen 1" and so on. *MacUser* articles are profusely illustrated with them. Ordinarily, you would dump the screen by typing COMMAND-SHIFT-3. With *Stepping Out*, COMMAND-OPTION-S produces a 576 X 720 pixel (8 X 10 inch) *MacPaint* file. These images never include re-

Taking The First Steps

Most applications work perfectly with *Stepping Out,* and appear to know no bounds. Some of them have resizable windows in some modes, but not in others. Any problems, non-obvious limitations or insanely large leaps in user efficiency are highlighted in this catalog of applications tested with *Stepping Out.*

GRAPHICS

Canvas 1.0 **No problems.**
Processing slowdown is noticeable.

ComicWorks 1.0
Maximum 8.5 X 11 page. Window grows to cover palettes on return from Thin Bits. You can't watch the airbrush at work. Spray effects are visible after releasing the mouse button.

Cricket Draw 1.0 **No problems.**
Slowed down text, shadow and fountain effects. Suppress effect animation for much better speed.

FullPaint 1.0 **No problems.**
For maximum area, use tiled windows option, and stretch windows manually. Windows are limited to Mac screen size.

Illustrator 1.1 **No problems.**

MacDraw 1.9 **No problems.**
Reduce to fit *enlarges* the image if screen is larger than document. Very slow replay of recorded *Tempo* macros.

MacDraft 1.2a
These menu selections will hang the program: Drawing Size, Reshape, Align Objects, Set Size Units. Much faster auto-scrolling than *MacDraft* itself. Still worth the trouble for large work.

MacPaint 1.45
Makes no use of large screens.

Mac3D 2.0 **No problems.**
Rotation and Camera windows are a fixed small size.

PowerPoint 1.0 **No problems.**
Maximum 8 X 11 inch wide or tall drawing page.

Pro3D 1.0 **No problems.**
Lathe and Profiler windows are Mac screen size only. Use Resize from View menu to fine-tune working window. Selection operations work, but objects and "ghosts" don't blink.

SuperPaint 1.0
Maximum 8.5 X 11-inch page. Place palettes on top or bottom of screen for convenience.

SPREADSHEETS AND DATA BASES

Excel 1.03 **No problems.**
Non-chart windows can be any width. Screen height of more than 1100 pixels gives taller rows. Charts limited to 8.5 X 11 inches. Display jumps to screen top when entering data.

File 1.02
Windows can be any width. Height must be either full virtual screen or Mac screen height. Report preview clears after first few lines.

FileMaker Plus 2.0 **No problems.**
Maximum work area is based on the selected paper size. Preview window is Mac screen size only.

Reflex 1.01 **No problems.**
Indispensable for large form layout.

Works 1.0 **No problems.**
Windows can use full virtual screen (except report design window). Good for side-by-side view of two document types. Worksheet display jumps to screen-top when entering data.

WORD AND IDEA PROCESSORS

HyperCard 1.0 **No problems**
No benefits, either. Cards can only be the size of a Mac screen. Only one card is visible at any time.

MacWrite 4.5 **No problems.**
Windows can be sized up to the 8-inch mark, height limited to Mac screen. Program patch in the Tip Sheet section of October '87 *MacUser* allows full page window stretch.

MindWrite 1.1 **No problems.**
Window manager adds flexibility.

MORE 1.1 **No problems.**
Great for full tree charts. Big screen is clumsy for bullet charts.

Word 1.05, 3.01 **No problems.**

WriteNow 1.0 **No problems.**
Maximum work area is based on the selected paper size.

PAGE LAYOUT

PageMaker 1.2, 2.0 **No problems with 2.0.**
Ideal working environment. Quantum productivity boost. (With version 1.2, you can't see the marquee or auto-scroll when selecting with it. Use shift-click for large off-screen selections).

Quark XPress 1.0
Same benefits as with *PageMaker.*

Ready, Set, Go!
Same benefits as with *PageMaker.* Use Cut instead of backspace to delete in order to bypass the annoying confirmation dialog box.

DESK ACCESSORIES

Art Grabber
Can't see the selection marquee, but it works.

MacTerm **No problems.**
Notepad +
(*Sidekick* 2.0)
Windows can be Mac-size or less, or zoomed to the full size of the screen.

MacPlan **No problems.**
(*Sidekick* 2.0)
Size spreadsheet up to the full size of the screen or up to Column U, Row 49, whichever is smallest.

Outlook **No problems.**
(*Sidekick* 2.0)
Windows can be up to the full size of the virtual screen.

SmartScrap **No problems.**
The Clipper
Sizing is limited to Macintosh screen size.

Best Performance.

Packing up to 40 megabytes of hard disk storage, 1 to 4 megabytes of RAM and even an optional 300/1200 baud internal modem within its small dimensions—the Dynamac® EL places unsurpassed power and versatility at your fingertips. Standard features include a Big Picture™ and composite video interface, a universal power supply and a high-resolution, gold Electroluminescent screen—capable of displaying 46% more information than a Macintosh.™ Choose from a variety of individually-tailored configurations, starting at $4995.

Best Value.

Now you can have Dynamac performance with a smaller price tag: introducing the Dynamac GP. The GP features the same basic design and range of configurations as the EL —but, by removing the Big Picture/composite video interface and switching to a bright orange, Gas Plasma screen (that displays the same amount of information as a Macintosh), we managed to save you a thousand dollars. Without compromising performance. The new Dynamac GP: starting at just $3995.

Case Closed.

No matter which model or configuration you select, the Dynamac comes with one standard feature that literally leaves the competition behind: it's portable. Sleek, rugged, easy to carry, the Dynamac is designed to accompany you anywhere, just like a briefcase. And, best of all, *it's available now.*

For more information, please contact Dynamac Computer Products, Inc., 1536 Cole Boulevard, Suite 252, Golden, Colorado 80401 (303) 233-7626.

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Please circle 70 on reader service card.

Screening Room
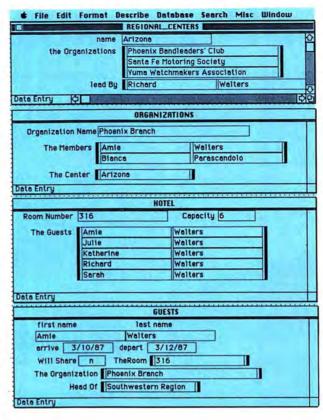
duced, enlarged or inverted views regardless of what's on the physical Mac screen. Most illustrations for this article were produced this way.

Although it works with *Switcher*, *Stepping Out* simply refuses to be launched by *Switcher*, so always launch *Stepping Out* first. Define a screen size that best fits your mix of applications. A size/shape that's optimal for one program may be inefficient for another. For example, a 640-pixel wide screen is fine for graphics, but may be frustrating for word processing because you'll usually overshoot the vertical scroll bar, and you'll rocket sideways instead. Place text windows flush with the far right edge of a wide screen so you can't overshoot their vertical scroll bars.

As you set up each switchable application, be sure to clear the Save Screen checkbox in the configuration dialog (or click its Macintosh icon in the *Switcher* window). Each application will then redraw its screen each time you switch to it. Otherwise, whenever you go from application A to application B, B's window may *appear* to contain the bottom part of A's window. This effect varies with the mix of applications, it's harmless and strictly cosmetic, but it leaves an unworkable mess.
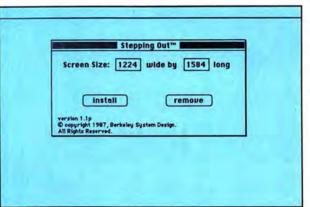
MAY I SEE THE MENU?

As you race across or down your large virtual screen, the menu bar, palettes and other non-trivial items unabashedly scroll away. Ordinarily, these don't move when you use scroll bars, but *Stepping Out* moves everything. *Stepping Out* 2.0, to be released by the time you read this, promises to keep the menu bar and tool palettes in view at all times. Meanwhile, you can reduce the inconvenience by using Command-key equivalents for menu selections. If an application lacks such equivalents, you can usually assign them via CE Software's *QuicKeys* or the careful use of *ResEdit*. Where possible, strategically relocate any movable tool palettes provided by applications such as *PageMaker, Ready, Set, Go!, Illustrator, ComicWorks, SuperPaint* and *FullPaint*.

Reflex Action. Don't overlap — distribute. With many related *Reflex* data base windows fully visible, you can save hunting and redrawing time, and you'll get a better overall picture of your data.

Four Pages, Please. The one and only *Stepping Out* dialog box is where you specify your screen size in pixels. The amount of RAM needed for a screen of the specified size is instantly calculated and shown in the lower right corner.

ON THE ALERT
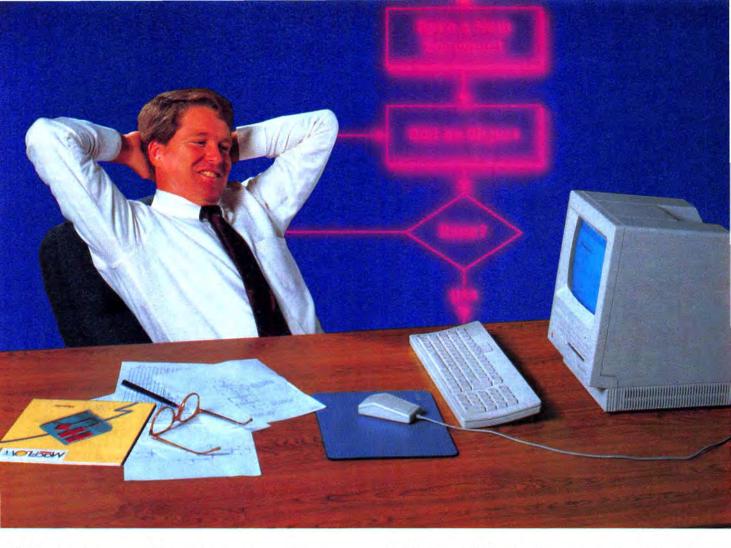
Sooner or later this will come to pass: You've commanded *Stepping Out* to set up a large screen, and are working away. Suddenly you are unable to manipulate objects, or your text insertion pointer disappears, scroll bars turn white or you hear beeps regardless of where you click or what you press. Your application is probably trying to tell you something. Somewhere in that sea of pixels, there is an out-of-view dialog box waiting for a response. Take a quick mouse-jog around the screen. If you're really baffled, examine your desktop in a reduced view. With experience, you'll know where each application puts its dialog boxes.

STEPPING IN TEMPO

Stepping Out works well with *Tempo*, a desk accessory for creating macros, provided you activate *Stepping Out* first. Be aware that *Stepping Out* uses COMMAND-OPTION-SPACEBAR, -B, -R, -S, -X, and -2 thru -16 for its functions so you may need to reassign some of your *Tempo* keys to prevent interference.

Tempo macros can help save time by auto-traveling to distant menus
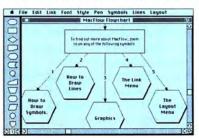
"It seemed so complex, until I did a flowchart" introducing MacFlow 2.0...

Imagine making a complex task seem simple with a quick flowchart!

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Use ANSI standard flowcharting symbols or custom design your own with MacDraw™ or any "draw" type program. Cut, copy and paste your chart into PageMaker™ or your favorite desktop publishing program for reports and presentations.

See the big picture...

MacFlow lets you develop an overall view of work, project, or logic flow. Hierarchical organization allows symbols to be linked to lower level flowcharts. Zoom to increased levels of detail. Return to the big picture with a click of the mouse.

Incredibly useful.

MacFlow is great for designing and documenting flow relations of any type. Use MacFlow for project flow, logic flow, operations flow, software flowcharts, experimental design, organization charts, troubleshooting diagrams and more.

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and palettes. When a macro runs, however, *Stepping Out* follows the cursor on its programmed journey and you must then mouse back from whence you came. At least it's a one-way trip.

Generally with *Stepping Out* activated you can record and faithfully play back macros. You can wander all over your big screen, and be assured that *Tempo* will reliably and quickly retrace your steps. *Excel* macros also record and replay perfectly.

However, the combination of *Stepping Out, MacDraw* and *Tempo* seems to add "do-nothing" steps to macros during the recording process. These padded macros play back about eight times slower than normal, with or without *Stepping Out* active. If you record your *MacDraw* macros before activating *Stepping Out,* they'll play back fine.

THE OVERHEAD OF OVERSIZE

The advantages of *Stepping Out* may cost you a modest amount of speed during processing-intensive operations. For example, both *Thunder's* and *MacLightning's* batch spell-checking modes run about 25 percent slower, as does *Excel's* sorting and macro playback. With object-oriented graphics applications, you must use freehand tools more slowly, or your paths may turn out more angular than curved.
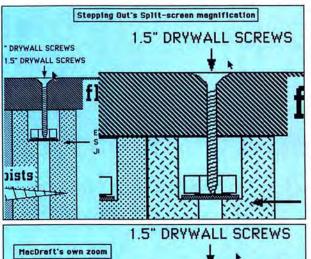
Stepping Out Version 1.1p is more transparent, and needs substantially less overhead than the earlier 1.05 version. Overall, for graphics and layouts, the adaptive steps are quite bearable, and the speed loss is insignificant compared to the time you save and the freedom you gain.

I used *Stepping Out* with *Finder* versions 5.3, 5.4 and 5.5 with no problems. With wide virtual screens, you can't see the disk or trash icons unless you mouse over to the extreme right, which moves you out from under the handy *Finder* menus. Dragging the disk icons into view is only a temporary solution. After you quit an application, the disk and trash icons always reappear at their far-right abodes.
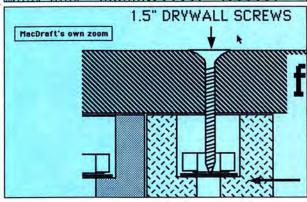
Moral: Don't bother with disk icons. Instead, double-click each disk and drag its opened window into

RAM Requirements for Typical Screen Sizes					
Area in Pages	Width in Inches	Height in Inches	Width in Pixels	Height in Pixels	Needed RAM K
1.0	8.5	11	612	792	141
1.3	8.5	14	612	1008	158
2.0	8.5	22	612	1584	203
1.3	11	11	792	792	160
1.6	11	14	792	1008	182
2.0	11	17	792	1224	204
3.1	17	17	1224	1224	270
4.0	17	22	1224	1584	327
5.2	22	22	1584	1584	389
6.0	22	25.5	1584	1836	438
8.0	34	22	2448	1584	562
12.0	34	33	2448	2376	803
16.0	44	34	3168	2448	1035
20.7	44	44	3168	3168	1317
25.0	55	42.5	3960	3060	1561
32.4	55	55	3960	3960	1997

RAM Requirements. These are very close approximations of the extra RAM you'll need to set up various sizes of virtual screens. Be careful not to stress the limits of your RAM, or some programs may hang or crash without warning.

Divide and Magnify. *Stepping Out's* variable split-screen magnification provides FatBits anytime. This 2X magnification of a *MacDraft* image (top) shows the extra jaggies you get with *Stepping Out,* compared with *MacDraft's* own zoom function (bottom). Still, it's a passable view, and switching from normal to enlarged view is instantaneous.

view somewhere under the menus. Leave your often-used windows open even when you eject or trash their disks. Whenever you reinsert a disk, its window(s) will reappear, opened and in view. Similarly, you can drag single applications or documents into view before ejecting their disk(s). Sorry, I found no workaround for the self-motivated trash can.

DO YOU COPY?

When you drag icons from disk to disk for copying, you may see the icons disappear from the original disk, and the normal file copy dialog may not appear when you expect it. And most animation effects — like folders zooming in and out when you click to open or close them — are suspended in *Stepping Out.* Don't worry. It's all cosmetic. The

Mac is too busy copying to let *Stepping Out* display an up-to-the milli-second view. But in the end everything turns out fine. Honest.

On an SE *Stepping Out* responds slightly faster than on a Mac Plus. And, although *Stepping Out* version 1.1p doesn't work on a Macintosh II, version 2.0 should.

I tested *Stepping Out* on a Mac Plus adapted for a Radius Full Page Display. Although I could *define* a large screen, there was no auto-scroll response when I moused past the visible screen's edges. In their present incarnations, there is nothing to gain by using, or even owning *Stepping Out* if your Mac has been adapted for an FPD. Future versions of each may change that.
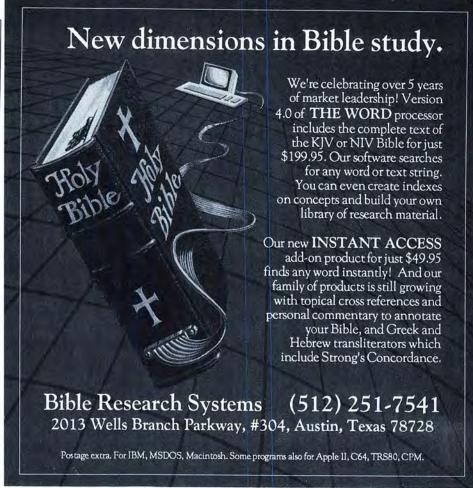
AND STEP ON IT!

Stepping Out is must-see, must-have software, well worth twice its price even if it enhances only one of your bread-and-butter applications. As long as large monitors remain expensive, *Stepping Out* offers a cost-effective productivity booster for graphics, design and layout. 🐭
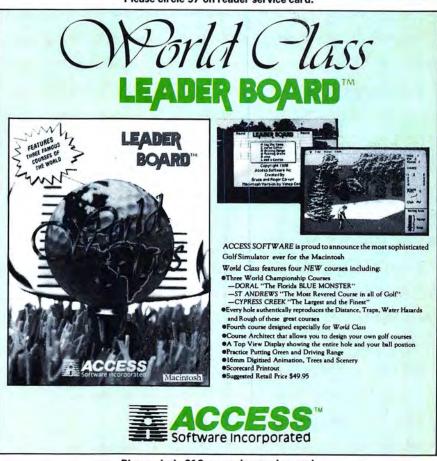
SALVATORE PARASCANDOLO IS A SYSTEMS ENGINEER WITH COMPTEK RESEARCH, A FREELANCE WRITER AND A MACINTOSH CONSULTANT BASED IN SAN DIEGO, CALIFORNIA.

MACUSER RATING					
Stepping Out 🐭🐭🐭🐭🐭					
Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help					None
Performance	■	■	■	■	■
Support	■	■	■	■	■
Consumer Value	■	■	■	■	■

Comments: An innovative software bridge between "the rest of us" and large-screen monitors. Its value is multiplied by the number of applications it enhances. Maximum virtual screen size is based on available memory. **Best Feature:** Reduces production time with existing applications by providing effortless access to much more of any document. **Worst Feature:** Current version scrolls away the menu bar along with the working document area. **List Price:** $95. 512K required. Published by Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 97409. (415) 540-5536. Version 1.1p reviewed. Not copy protected.

See Mac Read

Personal Writer may not always recognize the character, but it never forgets a font.

IT WAS THIRD GRADE. I WAS MUCH shorter. Mrs. Latshaw had handed back all of the spelling tests, except for one. "Somebody forgot to put their name on their test. Whoever it is wins the penmanship award this week. Whose writing *is* this?"

I was the only kid who hadn't gotten his test back. But Mrs. Latshaw couldn't believe that it was mine; my handwriting was ridiculous — how could my penmanship have suddenly gotten so good? She showed me the paper, and I immediately recognized the writing as mine. I reproduced some of it. She was flabbergasted.
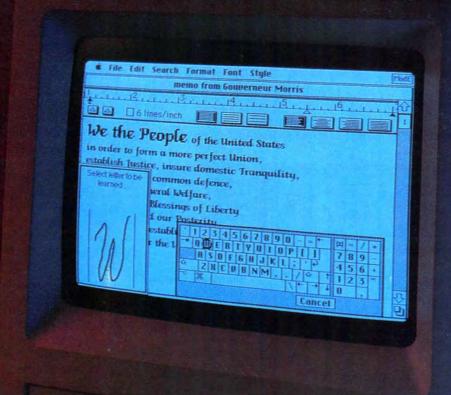
Eventually, we solved the mystery:

I had finally graduated to writing with a real #2 pencil, instead of the standard-issue kids' pencils as thick as your thumb.

Over the years, though, my writing has deteriorated back to the scrawly version that Mrs. Latshaw was more accustomed to. Typing and word processing have made me soft. I write without a keyboard only a few times a month: to sign my name and to write checks (for which you can't use a magic #2 pencil).

But buried in that scrawl of lines and loops is something that I can always decode into letters, even if nobody else can. That makes me ideally suited to test out the Personal Writer

BY JON ZILBER

MILTON DERMS

See Mac Read

PW15 S, a tablet-based character recognition system. If it can read *my* writing, it can read anybody's.

OF MICE AND PENS

Most tablets are intended primarily as mouse substitutes; Personal Writer is intended to replace your keyboard as well. Using Personal Writer, you enter text by writing it on a tablet, instead of typing it on a keyboard. Personal Writer aims to turn your scrawl into scripture, your autograph into ASCII. That's an ambitious task, and for the most part, the Personal Writer lives up to it.

The hardware consists of a stylus and an 11- X-17-inch tablet less than an inch thick. The tablet's writing area is covered with an 8.25-X-9.5-inch, sticky-side up surface, that holds a sheet of paper firmly in place. Above this is a 2.5-X-3.5-inch area that represents the Mac screen — you can move the stylus around this area instead of moving your mouse — and 50 special function "keys" that you "click" by touching them with the stylus.

The stylus is also a real pen, with ink and everything. So while you're writing, you can look at the paper instead of the screen. The pen also gives you the more familiar tactile sensation of ink flowing (instead of a dry scratchy stylus). And you'll get a hard copy record of your input.

Hooking up the tablet is straightforward. Plug it into your modem or printer port, plug the pen cord into the tablet and plug in the power supply. The Mac-to-tablet plug is a little shaky and fell out occasionally. (Nothing crashes; you just have to realize that's what happened and plug it back in.)
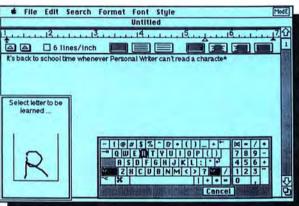
Next, put a piece of grid paper (included) on the tablet. Each time you start a new sheet, you'll calibrate its location by clicking the upper left and bottom right corners, so you don't have to be overly careful about its exact placement on the tablet.
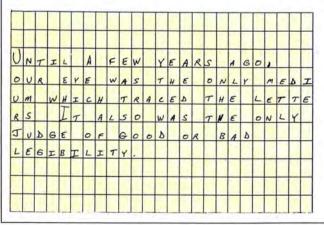
The first time you use Personal Writer, you'll go through an intensive training session, in which you'll write all 26 uppercase letters and 10 digits 7 times. First, attach a printed sheet with a grid of 252 cells (7 for each character) to the tablet. Fill them in any order. As you write each letter, an enlarged trace of what you're writing appears on the screen.

While you're writing, Personal Writer is learning to read your writing, storing and associating each trace with the appropriate letter in your personal character file. You should write normally — don't try to make nice letters if that's not how you're going to write in practice. You'll probably write faster than Per-

During the Intensive Learning Process, you provide Personal Writer with seven samples of each letter and digit. It stores these in your personal character file.

The Ongoing Learning process lets you add to the file of acceptable traces for each character. When Personal Writer can't interpret a character, an asterisk is displayed. Double-click on the cell for that character to bring up a keyboard icon, so you can tell Personal Writer how to interpret this shape in the future.

This quote was typed in, then handwritten using Personal Writer. A few misread characters were corrected "on the fly" (using backspacing or overwriting the character). Three mistakes remain: an uninterpretable T (displayed as an asterisk), an F misread as a K and a period misread as a U. The written input shows that the misread characters look similar to letters that Personal Writer was able to read correctly.

See Mac Read

sonal Writer can read, but it will catch up.

Although you input seven versions of each letter, Personal Writer ignores duplicates — traces that it deems sufficiently similar — to minimize the amount of memory required for your character file. (Storing a lot of excess traces slows down the recognition process, eats up memory and can increase the confusion caused by problem letters pairs, like capital O's versus zeros.) Personal Writer defines each character you teach it by storing information about the sequence and timing of pen-strokes, as well as a bit-map of what the letter looks like.

After this initial training session, you're ready to write. Put a fresh sheet of grid paper on the tablet (and reset the paper placement). Open up a word processor and start writing some text. You'll probably be awe-struck the first time you see Personal Writer magically transform your writing into actual letters on the screen.
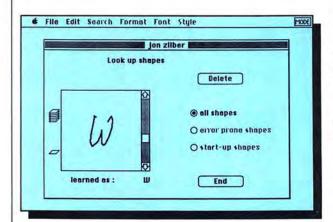
If you raise your expectations too high, however, awe can turn to frustration as you meet your first unrecognized characters. Whenever Personal Writer can't tell what a character is supposed to be, it substitutes a user-specified symbol (like * or ?). Double-click on the cell containing the questionable letter, and you'll get your first taste of the Ongoing Learning process.

Periodically, you can scan your character file to identify problematic letter shapes. You can delete individual traces or the entire start-up file of characters. Personal Writer can also identify error-prone shapes (for example, O's versus zeros, ones versus I's).

Personal Writer has three document modes — Standard, Text and Spreadsheet — for readin' your 'ritin' and 'rithmetic. This dialog box also lets you set the boundary height for upper- versus lowercase letters.

Personal Writer's French heritage occasionally reveals itself, as in this dialog box. (Translation, for très déclassé readers: "Sorry, PW cannot delete this trace.")

> **Y**ou'll probably be awestruck the first time you see your writing magically transformed into actual letters on the screen; awe can turn to frustration, however, as you meet your first unrecognized characters.
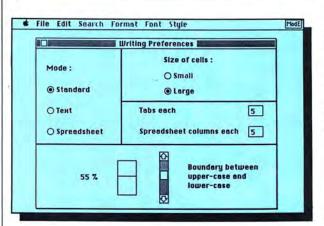
In this process, Personal Writer first shows you a trace of the character as you entered it. Usually, the trace is a faithful rendition of what you wrote, and you should tell Personal Writer how to interpret this trace in the future. You can type the letter on the keyboard or move your pen to the appropriate spot on an on-screen image of the keyboard and click on the right letter. Personal Writer adds this trace to your character file.

Sometimes you'll see a "bad" trace when you double-click an unrecognized letter that you don't want Personal Writer to learn. When this happens, hit Cancel on the keyboard image (which tells Personal Writer not to learn this character) and re-write the character again in the same cell.
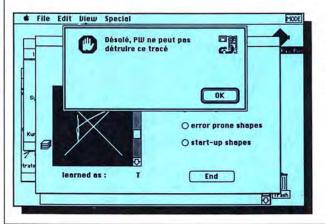
Sometimes these bad traces are

your fault, sometimes they're Personal Writer's. Your hand might have slipped, or you might have overlapped two letters in one cell. Or Personal Writer might have missed a stroke (rarely) or might have misinterpreted part of a pen stroke as an overstrike command (often).

MINDING YOUR P's AND Q's

Overstriking is one way of correcting mistakes: draw a horizontal line through a character, word or line and Personal Writer erases it from the screen. Another way of correcting mistakes is to simply write over them. The problem is that lots of characters (T, for example) begin with horizontal lines, so Personal Writer often reads that initial stroke as an overstrike, and you end up with a letter missing a horizontal line. (For example, a T gets interpreted as an I.) This can turn into a vicious cycle when you go to overstrike or overwrite the misinterpreted character. If you get the timing just right — pausing slightly after the overstrike, but not hesitating in the middle of a character — you won't have this problem — but it's not easy.

You can (and you will) make corrections in other ways, too. You can teach Personal Writer a backspace character and write it, hit the backspace key on the tablet, or use any of the usual mouse/keyboard methods of editing. This wealth of ways to correct text is well-intentioned, but often results in overwrite versus overstrike confusion. And if you move your pen even a little when you double-click on an unrecognized letter, Personal Writer may interpret that action as a character (for example, a period or a comma), not a double-click. Double-clicking can also make the text insertion point jump unexpectedly. Once this happens, your tablet and the screen can fall out of synch, making it difficult to edit. Too much power, too many options.

If you get a stream of unrecognized characters, resist the urge to just press harder on the pen — it doesn't help any more than banging harder on the elevator buttons makes the elevator get there faster. There *are* better tactics.

BACK TO SCHOOL

A click on a key on the tablet will take you back into the intensive training mode if you decide you and Personal Writer need some serious remedial work. Another way to improve recognition is to examine your entire character file (available via another tablet key) and weed out any misfit characters that may have slipped by in the learning process. And the process of looking over all your letters may suggest ways to change your writing to make it less ambiguous.

After you've built up your letter library (from the Intensive Learning

*Y*ou can just as easily teach Personal Writer to recognize graphic versions of other alphabets, like Braille or Morse Code.

process and an hour or two of practice), you may want to delete the Start-up File of characters. These are stock letters automatically included when your personal file was created. If you have non-standard ways of forming some of your letters, the standard characters may hinder their recognition. An option in the Ongoing Learning dialog box lets you delete these individually or all at once.

Another option in this dialog searches for error-prone shapes (close matches, such as O's and zeros, L's and C's, and I's and ones). You may want to delete these traces, and add new ones, using more distinct letter forms for your problem letters. (For example, you could slash your 0's and cross your 7's, use top and bottom crossbars on your I's, and so on.)

Personal Writer is too diplomatic: It lets you keep your ambiguous writing style if you insist. The result can be a high percentage of mistaken let-

ters. A more dictatorial approach is called for. Remember those grade school teachers who told you to write it their way and not ask questions? That kind of imposed conformity might be unduly oppressive for intra-human communication, but when dealing with a computer, it's a necessary evil. It's nice of Personal Writer to give you the freedom to be a slob, but I'd rather suffer a little humiliation over my penmanship than face endless misread characters.

Ideally, Personal Writer should be a benevolent dictator, categorically refusing to accept potential ambiguities, while offering constructive suggestions on ways to make your writing more legible. It would be nice to have some kind of diagnostics in the Ongoing Learning dialog box explaining, for example, why an A that, to me, looks like all my other A's was not recognized. For example, it could tell me that the unrecognized character had a similar bit map to an A, but was created using a different sequence of strokes. On other traces, perhaps an arrow could point to problem areas in the traces with comments like "It's hard for me to tell O's from U's if you don't close the loop" or "If you slash your zeros, it would be easier to distinguish them from O's."

However, the reasoning behind these kinds of hypothetical smart dialogs would require a fair amount of artificial intelligence (see sidebar) — more than what could be done today, given price and memory constraints.

A less sophisticated way of upping the recognition rate would be to have Personal Writer suggest appropriate drill phrases that stress the problem letters (for example, "007 IS COOL" if O's and 0's and L's and C's are causing confusion) as part of the remedial learning process.

THE OTHER 26
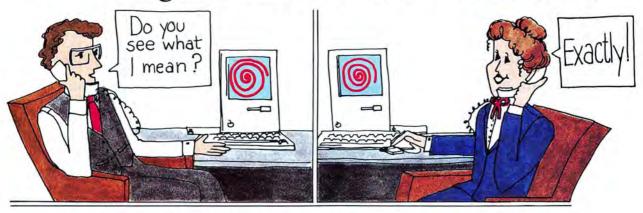
Somewhere around here (or before) you noticed that nothing has been said about lowercase letters. You only teach the program your upper case letters. Does that mean all your writing must be done in capitals? Not at all.

Personal Writer uses a clever, and

relatively painless, stratagem to cut its character recognition task in half: it only needs to learn capital letters. It distinguishes between upper- and lowercase letters by their height. You set an imaginary line to a user-specified height (typically 50% to 60% up the vertical); letters that exceed this height are caps, letters below it are lower case. You can teach Personal Writer to recognize both upper- and lowercase versions of a letter (such as "a" and "A"), but it still determines upper- versus lowercase on the basis of height, not shape. If you use both upper- and lowercase in your Personal Writer application, you can customize your grid paper to show the cut-off line at whatever height you've set it.

IT'S A MODE, MODE, MODE, MODE WORD

If you need only upper or only lowercase, you can set Personal Writer for either mode exclusively, using the appropriate tablet key. There's also an all-numeric mode. Using any of these restricted modes makes Personal Writer's job easier and usually improves the percentage of characters it correctly identifies. Redoing the paper positioning process — even though you haven't changed sheets — may help improve the recognition rate, especially if you change modes frequently.

Personal Writer will learn whatever characters you teach it. That includes tab and return symbols, or other action keys. And you're not limited to the standard alphabet. You can just as easily teach Personal Writer to recognize graphic versions of other alphabets, like Braille or Morse Code. Or secret codes. (Or UPC, if that's your native tongue.) If you're ambitious, you can even invent your own optimized alphabet of symbols that are easier to differentiate than standard letters.

In addition to character modes, Personal Writer has three page layout modes. In Spreadsheet mode, you can associate the grid on your page with columns on a spreadsheet. For example, if you have five-digit numbers on your spreadsheet, you could specify that every fifth cell automatically starts a new column

If U Cn Rd Ths, U Shld B N AI

Character recognition is one of the classic — and most difficult — problems of artificial intelligence. It's one of those things that comes so naturally that we don't realize just how difficult it is. Consider the letters in Figure 1. There's no question that they're all A's, even though they all look different. There's sloppiness, differences in orientation and personal idiosyncrasies. But an ideal character recognizer would call all of these shapes A's.

There are basically two ways to go in the character recognition game. The difference between the two ways is similar to the difference between bit-mapped and object-oriented graphics. You can match the pixel pattern created by the input for a letter bit for bit against a bank of character templates and find the one with the closest fit. This can be time consuming, and can lead to some judgment calls that would be ridiculous from a human standpoint. For example, an M with little space between the last two strokes matches the bitmap for an N more closely than an M, even though most human readers would know it as an M when they saw it.

This suggests the second approach: object- or vector-analysis. This involves breaking each character into a pattern of components, such as left-to-right lines, right-to-left lines, up-to-down lines, down-to-up lines, curves, angles, and so on. In a vector-based scheme, the M could not be misread as an N, since M's consist of four lines, and N's have only three. But vector schemes are not infallible, either. And they give you less freedom to write inconsistently, since they analyze the process, rather than just the result. So, for example, if you missed the first stroke in your M and went back to make it later, a hypothetical (and naive) vector scheme might call the result a W, (since it was formed from the series of strokes — down, up, down, up — that characterizes a W).

Personal Writer uses a combination of both approaches. It leans most heavily on matching bit maps. But it also watches the sequence and timing of pen strokes. It has to do this if it is going to be able to decide whether a horizontal stroke is an overstrike or the first line of a rewritten letter. And, consequently, it might not

An A is an A is an A...

In a bit map character recognition algorithm, a sloppy M might be mistaken for an N, if the last two strokes are too close together.

(without having to tab between columns). Unfortunately, all the columns must have the same width. In Spreadsheet mode, you can jump back to an earlier spreadsheet cell to make corrections. However, you can't generate a cell reference by simply pointing to a spot on the tablet, as you can with your mouse (in spreadsheets like *Excel*).

There's also a (meaninglessly named) Text mode. This tells Personal Writer to recognize skipped lines and to put an initial tab at the start of each line if a specified number of cells are left blank (but does not recognize these blanks as a tab if you're in the middle of a line). In Normal mode, skipped lines and spaces are generally ignored. The last word in a line must have at least one space after it, otherwise a word wrap feature kicks in. So whenever a word ends in the last cell on a line, you'll have to leave the first cell of the next line blank.

recognize an A that looks almost identical to an A in its dictionary; the difference lies in the order or timing of strokes.

There's a trade-off between more sophisticated recognition algorithms and memory and speed considerations. And Personal Writer has found a nice balance, for the applications it's likely to be used for. But for a more widely useful device, more sophistication will be needed. An alternative to straight character schemes is to use context. In Figure 4, the same shape can be a slanted H or a not-quite-closed A. The context — the surrounding letters — makes the difference clear.

What's needed is similar to a crossword puzzle dictionary that checks for all possible matches to a word with one or more ambiguous letters missing. If there is only one match, the problem is solved. More sophisticated artificial intelligence algorithms could also guess what part of speech the word represents, to further refine the search and eliminate choices (hopefully whittling down the number of possibilities to one).

Parsing sentences is a monstrously difficult task to program if you have to operate on a large vocabulary. But most text is comprised of a relatively small basic vocabulary, and most applications (for example, business, medicine, etc.) would have an even smaller repetitive vocabulary. A context-sensitive dictionary of even a few of the most common words or phrases could boost the recognition algorithms substantially.

Handwriting recognition could prove to be only a stopgap measure in input technology if speech recognition technology ever becomes affordable. Speech recognition is algorithmically similar to writing recognition in many ways. But spoken language adds even more dimensions for ambiguity, such as a speaker's pitch, inflection and regional and national accent.

Training the machine can overcome these problems. More fundamental is the confusion resulting from sound-alike words and the difficulty in knowing where one word leaves off and the next begins (for example, "illegal unit" and "ill eagle you knit"). So context-sensitive clues for eliminating meaningless interpretations are even more critical in speech recognition technology.

In a naïve vector-based algorithm, an M could be mistaken for W if the order of strokes was inadvertently changed.

An A is an A — unless it's an H. The same shape can be interpreted as two different letters, depending on the context.

can easily pick up where you left off with a drawing.

By and large, the hardware and software interfaces are excellent. There are a few problems, some of them the inevitable result of reasonable compromises. The parts of the tablet not covered with paper get covered with ink. You can remove most of the mess with an eraser or detergent. If you wait too long between cleanings, the accumulated ink can impede the smooth flow of the pen-tablet contact. It can also be messy. (A pen cap or retractable tip would help.) I had the same problem with the tablet that I have with carbonless forms: if you put other papers on top of the tablet and write on them, you get gibberish underneath.

The mouse area at the top of the tablet has no markings to guide you around except for a menu bar. A few other screen landmarks would be nice (like the Apple menu, or an outline of the keyboard that appears during the Ongoing Learning process).

The manual covers all the bases for getting started in a straightforward and clear fashion. It is not without problems, however. There are some occasional curious translations and phraseology (Personal Writer's parent company, Anatex, is based in France), such as "If you click with your pen the scroll box, the corresponding character is displayed." The manual also speaks rather formally of "tabulations" (instead of plain old "tabs"). One note suggests that you can clean the tablet surface with alcohol or liquid cleansers, but to avoid "ether."

The manual is a little over enthusiastic in suggesting that "Once you have opened your personal Character File you can dispose of the keyboard and mouse altogether." And it has a tendency to generalize; it states that certain applications show certain quirks with Personal Writer, but rarely names names. The manual also notes that you can select between large- and small-celled grids (with the large grid having a 25-X-19 cell configuration) but it never mentions the small-celled version (nor is a sample sheet of this grid included).

Also, a couple of warnings are buried in the wrong sections. For exam-

Personal Writer also has two drawing modes. Freehand mode uses a portion of the tablet as a drawing area. (You can also draw in the small mouse area, but you'd have little control or precision.) Scheme drawing mode is designed primarily for working with object-based drawing tools. To draw a rectangle in Scheme drawing, for example, click on the rectangle tool, click the first corner, raise your pen, and then click the far corner (instead of dragging your pen from one corner to the other). An advantage of this mode is that it doesn't leave a meaningless mess on your paper (which might be an original piece of art, or a hard copy record you want to save).

Both drawing modes use absolute positioning. That is, a spot on the tablet always corresponds to the same spot on the screen. With absolute positioning, the placement of new lines is not dependent on the current position of the cursor; you

ple, at the end of the section on how to customize the data entry grids into customized forms, there's a note mentioning that the Ongoing Learning process doesn't work in some data base applications. This note should be more prominent, and it would be nice to know which programs they have in mind.

The manual does offer some useful suggestions on how to customize the grids into your own forms by putting labels in the cells. (Unfortunately, the only example included is an order form for additional Personal Writer equipment.) Data entry is one of the most appropriate applications for Personal Writer, since clerical applications often use restricted alpha or numeric alphabets (making

it easier to achieve higher character recognition), and their repetitive nature favors writers who will input letters more consistently. Personal Writer also has a macro feature for improving data entry productivity: You can trigger several command key equivalents from macro keys on the tablet, or program your own. You can also use a macro to recall a block of up to 255 characters of frequently used text.

Personal Writer requires a fair chunk of RAM. The program itself takes up 624K, and your writing file could easily take up 100K. The program also needs some room for scratch files. With a 1-megabyte SE, I didn't have enough room to load *Word* 3.0. If memory is a problem, select the stripped-down version of the program (in which Personal Writer can't learn any new characters) to save 144K.

I came across only a few programs that were incompatible with Personal Writer. The program wouldn't launch successfully until I removed *NetModem* from my system folder. *BigCaps* (a *Keycaps*-like DA) seems to interpret every character from the tablet as a lowercase "a". Scheme mode drawing was problematic in *Ready, Set, Go!* 3.0. Since Personal Writer puts an icon telling you what mode you're in (all uppercase, all lower case, mixed cases, numeric, freehand drawing or scheme drawing) in the upper right corner of the screen, you'll probably want to disable any DAs (like *JClock*) that also use that corner. And, at present, Personal Writer is incompatible with *HyperCard* and *MultiFinder*.

Files containing master graphics for all the grids you'll need are included. You'll have to run them on an ImageWriter (or photocopy the samples included), since they exceed the LaserWriter's margins. (The originals could have been better quality; you may want to create your own grid forms with, for example, non-repro blue grid lines.)

RX FOR DOCTORS

Personal Writer is an impressive debut. The product is nicely designed and surprisingly robust (both the software and the hardware —

which survived an unintentional 3-foot fall). The learning process is about as fast as it could be. But even after extensive training, its percentage of characters recognized is still too low for you to "dispose of your keyboard and mouse altogether." For neat and consistent writers, rates of over 95 percent may be obtainable, but this may still be unsatisfactory for text-intensive applications.

Personal Writer plans to release improved software (such as adding an on-line dictionary to help Personal Writer make educated guesses about unrecognized characters). And improved hardware is also planned to increase the tablet's resolution from 200 dots per inch and 60 points per second to 800 dots per inch and 200 points per second.

In short, it's a great product — but for whom? With anything short of 98 or 99 percent character recognition, typing is probably easier, even for the hunt-and-peck crowd. And those computer-using executives who won't type at all — the ones the computer companies are always wooing with easy-to-use systems — probably won't have the patience for the Personal Writer training process, either (painless as it is).

The combination of character recognition, tablet graphics and macros makes Personal Writer a nice possibility for some data base applications. Personal Writer would be great for teaching kids to write legibly, but it's probably overpriced for the education market (which still shies away from Macs in the first place). The less price-sensitive medical market might be interested in Personal Writer as a therapeutic tool for patients that need eye-hand motor skill training. (Or to correct the notoriously bad handwriting of physicians.)

But, for now, most of us will probably keep relying on the old reliable technology, like keyboards and mice. And #2 pencils.

UPON CLOSE EXAMINATION, FEATURE EDITOR JON ZILBER'S SIGNATURE CONSISTS ENTIRELY OF VOWELS.

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MACUSER RATING

Personal Writer PW 15 S

♦♦♦♦

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	□	□
On-Screen Help					None
Performance	■	■	■	■	□
Support	■	■	■	□	□
Consumer Value	■	■	■	□	□

Comments: A tablet-based handwriting recognition system, with tablet graphics and macros. **Best Feature:** You can input anything — text, graphics and commands — from the tablet, simplifying data entry and increasing productivity. **Worst Feature:** The number of misread characters is too high for general word processing applications. **List Price:** $895. Published by Personal Writer, 1801 Avenue of the Stars, Suite 507, Los Angeles, CA 90067. (213) 556-1628. Requires at least 1 megabyte of RAM. Software not copy protected.

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F L A S H
C A R D S

EDITED BY LAURA JOHNSON AND VICTORIA JUAREZ
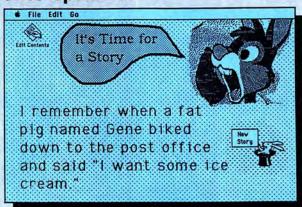
Has anybody figured out what *HyperCard* is yet? An application? System software? A universal data standard that lets you store text, data, graphics, sound and even logical structures in a common format that can be shared by diverse applications? An intuitive programming tool that does to programming languages what calculators did to log tables? A dessert topping?

We're pretty sure it's not that last item, but whatever it is, the stacks keep stacking up. It's still too soon to subject stackware to our grueling reviewing process. So while the stackware authors get their bearings, we'll be giving you a glimpse of what *HyperCard* can do in Flash Cards. We've collected some of our favorites in the following pages. (You can find the shareware and freeware stacks on bulletin boards and the commercial stacks at your local software emporium.)
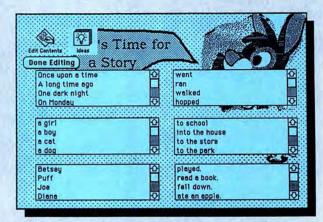
Some of these stacks are neat products; others are neat ideas. We hope they inspire you to create your own *HyperCard* stacks. And we hope you'll send a copy of your stack to Flash Cards, c/o *MacUser*, Suite 250, 110 Marsh Drive, Foster City, CA 94404.

Once Upon A Time
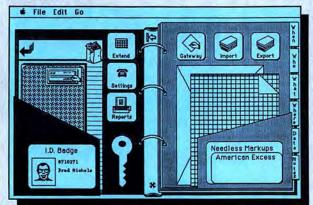
A "choose your own" story stack. Change field contents to add familiar words or names and to gear the reading level to your child. Use with *MacInTalk* to listen to the story. Start by clicking on Br'er Rabbit's nose. *Story Machine* is swapware by Dick Walker, CompuServe 71310,126.
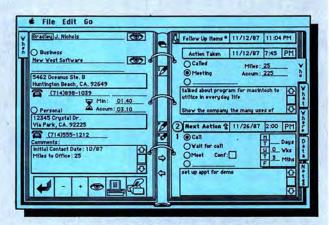
Big Boss

This organizational software package has full data security with multiple passwords plus enough features to delight even the most scrupulous management executive. *Executive Life* by New West Software, 5462 Oceanus, Suite B, Huntington Beach, CA 92649.

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Behind the Scenes

'Tis the Season

All you could ever want to know about Wagner's opera, *Parsifal*. This stackware provides you with the story, the background, "about the characters," terminology with sound effects and more. *About Parsifal* by Jay Martin Anderson, 807 West Lynn Street, #201, Austin, TX 78703.

Want to get a head start on Christmas '88? Let this stack get you in the mood with Christmas stories, carols and scenes that you may want to use on your Hyper Christmas cards. *Hyper Christmas Card* from Bright Ideas, 52 Exeter Street, Portland, ME 04102-2839.

Play Ball

File Edit Go Tools Objects

Click on the "Info" button for usage instructions.

Info... Sort Cards...

☐ PLAYER ☐ SLUG% ☐ SAC FLIES ☐ 2B
☐ TEAM ☐ ON BASE% ☐ SACRIFICES ☐ 3B
☐ POSITION ☐ GAMES ☐ STOLEN BASES ☐ HR
☐ BATS ☐ AB ☐ STRIKE OUTS ☐ RBI
☐ BAT. AVE. ☐ RUNS ☐ BASE ON BALL ☐ GWRBI
☐ HITS ☐ ERRORS

● Ascending ○ Descending
● Text ○ Numeric ○ Date ○ International

File Edit Go Tools Objects

PLAYER ALDRETE TEAM SF POS 1B BATS L GAMES 126

BATTING AVERAGE .325 SAC FLIES 2
SLUGGING % .462 SACRIFICES 4
ON BASE % .396 STOLEN BASES 6
STRIKE OUTS 8
BASE ON BALLS 43 ERRORS 3

AB	HITS	2B	3B	HR	RBI	GWRBI	RUNS
357	116	18	2	9	51	8	50

Sort

NL NATIONAL LEAGUE

File Edit Go Tools Objects

PLAYER ALLANSON TEAM CLEV POS C BATS R GAMES 50

BATTING AVERAGE .266 SAC FLIES 5
SLUGGING % .363 SACRIFICES 4
ON BASE % .298 STOLEN BASES 1
STRIKE OUTS 30
BASE ON BALLS 9 ERRORS 4

AB	HITS	2B	3B	HR	RBI	GWRBI	RUNS
154	41	6	0	3	16	0	17

Sort

AL AMERICAN LEAGUE

Brush up on your baseball stats and be ready to impress your friends this season. Look at the sorting card for the many ways to view the statistics of the National and American Leagues for 1986 and 1987. *Baseball Stat Stacks* by Roger Cornia, SportsWare, 940 Hoxell St., Gilroy, CA 95020.

Organized Crime

Master Client List

Configure Billing Options

Account Number:
Client Name:
Matter:

Sort New
Time Slips
Disbursements

Show the following on:
○ All Bills
○ Above Bill Only
☐ Attorney
☐ Hours
☐ Rate
☐ Total Fees

Bill in increments of:
● Quarter Hours
○ Ten Minute Intervals

Amt. Due
Prepare Above Bill
Prepare All Bills
Clear All

Sort Date Clear New

Description of Disbursement:

Client Account Number:

Client Name and Matter:

○ Photocopies ___ • .15 = ___
○ Long-distance telephone charges
○ Delivery Charges
○ Court filing fees
○ Filing Fees, other
○ Computer assisted research
○ Travel Expenses
○ Miscellaneous
○ not yet installed
○ not yet installed

Master Client List TOTAL

End Sort Clear New

Start Time:

Client Account Number:

End Time:

Client Name and Matter:

___ hours at
$ ___ per hour =
$ ___

Description of Services Rendered:

Master Client List

This stack is to help lawyers and other legal types organize client billing information. Use it to keep a detailed listing of services rendered on your clients' behalf. Log your hours, fees, disbursements — and when you're ready, select PREPARE ALL BILLS. *Client Disbursements* by Peter B. Nagel.

When you want to talk MacIntosh

FLASH CARDS

Stack That Tune

Put all your digitized sound resources in one place. If you feel creative, you can click on RECORD and then click on your choice of sound buttons. Click on PLAY RECORDING to hear your creation. *Sound Studio Stack* by Steven Drazga, 450 Byberry Road #1, Philadelphia, PA 19116.

Finders Keepers
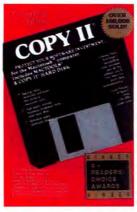
This is a combination of several HyperFinder type stacks, but the bonus is the scrolling dialog box by J. Paul. A click on the stack icon allows you to view all available finder cards. *Work Station* is freeware from D. J. Iwatate, GEnie: K.IWATATE.

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Macintosh SE

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Copy II also allows you to undelete accidentally deleted files from either hard disks or diskettes. Back up popular copy-protected programs and **run many of them from your hard disk.** And—if you own an SE—dramatically speed up that slow upper internal drive.

"It may be the copying function that gets you interested in Copy II Mac..., but MacTools® itself [the utilities] is worth the cost of the software." —CompuServe

MU-11

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Stack Market

Whether you're a *HyperCard* user or programmer, the Stack Exchange, the clearinghouse for *HyperCard* authors and users, is for you. It joins Heizer Software's Excellent Exchange and WorksXchange products lines. By Heizer Software, 1941 Oak Park Blvd., Suite 30, Pleasant Hill, CA 94523.

A Taxing Situation

Let this shareware version of *California Weekly Payroll Stack* figure your portion of the tax bite. Is there money (life) after taxes? By R. J. Downs, 16447 Chippewa, Apple Valley, CA 92307.

Bite the Apple

Choose your sights to see, places to stay and shop, where to eat and how to get there. *The Big Apple Stack* is loaded with information on Manhattan. By Kabisa Computer Creations. 914 President St., Brooklyn, NY 11215.

One Stack Through Another

... in a flash. Use *Script Report* to breeze through objects and scripts of *Hypercard* stacks. Create text files or hard copy. Available from Heizer Software, 1941 Oak Park Blvd.,Ste.30,Pleasant Hill, CA 94523.

MINIFINDERS

Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the *MacUser* editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Blue names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). If a product has been reviewed or Quick Clicked in *MacUser*, the date of the review is shown. Next time you have to find products you can count on, count on *MacUser*!

INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features versatile
♦♦♦♦ charting and data base capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. $195. VisiCorp, 2700 Augustine Dr., Santa Clara, CA 95054. CP (Jan 86)

Excel is THE power spreadsheet. Of the Mac, of the world. Has 256-
♦♦♦♦♦ column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Prem)

Jazz provides well-integrated modules for word processing, graphs,
♦♦♦♦ worksheets, data bases and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word pro-
♦♦♦♦½ cessing, data base, spreadsheet and telecommunications functions. The telecommunications module includes background up- and downloading. $295. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct 86)

Trapeze (version 2.0) is a powerful presentation worksheet that com-
♦♦♦♦½ bines mathematical functions and graphic representation. The interface, which consists of an icon bar, can be awkward to use. Mac II and color supported. Data Tailor, 3113 S. University Dr., Fort Worth, TX 76109. NCP (Dec 87)

BUSINESS ACCOUNTING

Accountant, Inc. V2.0 integrates accounts payable, accounts receiv-
♦♦♦ able, general ledger and inventory modules. Prints checks, purchase orders, invoices, customized reports. Bare bones accounting system limited in size and scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. $299. SoftSync, 162 Madison Ave., New York, NY 10016. NCP (Oct 87)

Back to Basics Accounting is a powerful double-entry accounting
♦♦♦♦ software package for the small business user with GL, AR and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May 87)

BPI General Accounting is an easy to use system. Six journals, AR, AP,
♦♦♦♦ Payroll and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

CheckMark is a Ledger with five preset journals: Cash Disbursements,
♦♦♦♦ Receipts, General, Sales and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built in; customer and vendor info is very minimal. $295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP (Dec 85)

Insight is a high-powered accounting program for the small to medium
♦♦♦♦½ size business. At present, three modules are available: Accounts Receivable, Payables and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 529 Main St., Boston, MA 02129. NCP (Dec 86)

Rags to Riches integrated accounting modules (General Ledger and
♦♦♦♦½ Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Version 3.0 now provides detailed, flexible report options. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec 85)

Rags to Riches Professional Billing tracks and bills professional ser-
♦♦♦♦ vices. Batches activities for individual timekeepers. Use as standalone, or integrate with *R to R* modules. Requires 512K+, printer. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined set up
♦♦♦♦ procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each; and customized reports. Program print spools. Requires 512K+, printer and external drive. $395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a good
♦♦♦ manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

MacInTax is an excellent tool for preparing tax forms. Intuitive, easy to
♦♦♦♦♦ use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. $99 federal; $45 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar 87)

MacMoney is a complete and easy-to-use personal financial system.
♦♦♦♦½ Intuitive data entry. Integrates with *MacInTax*. Requires 512K+. $74.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (May 87)

Market Pro is a comprehensive portfolio management program for the
‡‡‡‡ generation of fundamental data as well as technical charts and graphs. Requires 512K+, external drive and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)

DATA BASES

Business Filevision is a masterpiece of Macintosh programming, the only
‡‡‡‡ true graphic data base on any micro. Much more powerful than the original, accepts *MacPaint* graphics. $395. Telos Software, 3420 Ocean Park Blvd., Santa Monica, CA 90405. NCP (Feb 86)

C.A.T. is a dedicated relational data base for managing contacts, activi-
‡‡‡½ ties and time. Difficult to learn, but easy to use. Its rigid structure takes some getting used to, but links between types of data make it easy to keep track of important people and events. $299.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov 87)

dBase Mac is a relational DBMS that includes a structured program-
‡‡‡‡ ming language to develop standalone applications. Palette icons as alternatives to menu commands will help novice users. Requires 1M+. $495. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (Feb 88)

Double Helix is an environment to generate custom applications built
‡‡‡‡ around a data base-type framework. Contains enhancements to *Helix* 2.0. Includes custom menus, sub form windows, password protection and a universal dump and load parser. Ability to store pictures as data fields. $495. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Oct 86)

FileMaker Plus retains features of *FileMaker* and reads *FileMaker* data,
‡‡‡‡‡ also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Requires 512K+. $295. Nashoba Systems, 175 Sudbury Rd., Concord, MA 01742. NCP (Nov 86)

4th Dimension is a powerful relational data base that creates stand-
‡‡‡‡½ alone applications. Features a Pascal-like programming language environment. Somewhat slow. $695. Acius, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov 87)

MacDewey! (version 2.5) is a cataloging program featuring the Dewey
‡‡‡ Decimal Classification system. Uses predefined fill-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. $79.95. Mousetrap Software, 336 Coleman Dr., Monroeville, PA 15146. NCP (Nov 87)

Omnis 3 is a power data base, featuring concurrent multiple file man-
‡‡‡‡ agement. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments including user-defined menus, commands and dialogs. $495. Blyth, 2929 Campus Dr., San Mateo, CA 94403. NCP (Mar 86)

OverVUE is a power-packed relational data base that has extensive
‡‡‡‡½ sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. It can exchange files with a very wide variety of other programs (including IBM software). $295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov 85)

Professional Bibliographic System is a specialized data base for stor-
‡‡‡‡ ing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. $295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb 87)

Record Holder is a flexible, easy-to-use form-oriented data manager.
‡‡‡‡ Setup is particularly simple and the search features are powerful. $69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074 NCP (Apr 86)

Reflex For The Mac is a flexible relational data base. Excellent report
‡‡‡‡½ generator gives full control over appearance, style of output. Requires 512K+, second drive or hard disk. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 86)

Reflex Plus is a relational data base with "smart" entry and report
‡‡‡‡ design, but no overall programming facility. Simple to set up, yet

fast. Graphic capabilities are quite limited. Version 1.0 reviewed. $279. Borland/Analytica, 4585 Scotts Valley Dr., Scotts Valley, CA 95066-9987. NCP (Feb 88)

Writer's Workshop maintains orderly records for writers. It can track
‡‡‡½ manuscripts, income and publisher. Based on and includes *Runtime Helix*. $99.95. Futuresoft System Designs, PO Box 132, New York, NY 10012. NCP (Apr 87)

NUMBER CRUNCHING

DesignScope is a construction kit for digital and analog circuits. Up to
‡‡‡‡ 254 components can be utilized in a single circuit, and the equivalent of a dual trace oscilloscope plots output in real-time. Good for testing circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Nov 86)

MacCalc is a fast, competent, full-featured spreadsheet with impres-
‡‡‡‡ sive built-in functions, font control, on-line help, ability to expand columns and rows and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. Cell names, printing power make *MacCalc* a very flexible pure spreadsheet. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

MacSpin is a unique and powerful graphic data analysis program. Han-
‡‡‡‡ dles multivariate data in a highly visual manner. Nothing else like it for any micro. $199.95. D² Software, PO Box 9546, Austin, TX 78766-9546. CP (Jun 86)

Mindsight is a professional level decision support and business plan-
‡‡‡‡ ning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. $249. Execucom Systems, PO Box 9758, Austin, TX 78766. CP (Dec 86)

Multiplan, the first Mac product from someone other than Apple, is
‡‡‡½ beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar 86)

Parameter Manager is a data manager, incorporating integrated
‡‡‡‡ scheduling, statistics and graphics. It has solid spreadsheet, calendar and data base functions, and reports can be customized using other software. *Parameter Manager* can also import data from *Excel* or *Lotus 1-2-3*. $495. SMS, 651 River Oaks Parkway, San Jose, CA 95134. NCP (Jul 87)

StatView 512+ is a very intuitive statistical analysis program with
‡‡‡‡‡ tools needed to understand any set of data. Holds data in a spreadsheet-like form. Full-featured, fast and accurate. Extremely wide range of analyses possible. Requires 512K+ and 800K of disk space to operate. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 86)

StatWorks is a general-purpose statistics package that is both power-
‡‡‡‡ ful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. $125. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 86)

GRAPHICS & DESIGN

CalendarMaker creates monthly calendars in a variety of formats.
‡‡‡‡½ Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. $30. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Dec 86)

Canvas is a Draw and Paint program that uses QuickDraw as its
‡‡‡‡½ output language. Full of features, including free rotation and one and two point perspective. Also has graphics macro commands, unusual in a program this inexpensive. $195. Deneba, 7855 N.W. 12th St., Suite 202, Miami, FL 33126. NCP (Jan 88)

Chart can easily create area, bar, column, line, pie, scatter and combi-
‡‡‡½ nation charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice

that on a 512K Mac. $125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

ClickArt Special Effects is a *MacPaint* enhancement desk accessory.
‡‡‡½ Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. $49.95. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint allows you to print *FullPaint*, *MacPaint*, *MacDraw* and *Mac-*
‡‡‡ *Draft* documents in color using the ImageWriter II or ImageWriter I. *Paint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration. $29.95. I/O Design, PO Box 156, Exton, PA 19241. NCP (Mar 86)

Comic Strip Factory is an assembly program for creating comic strips.
‡‡‡‡½ Includes a data base of parts for various characters and backgrounds for panels. Good text editing in balloons. Can import and export in *MacPaint* format. $89.95. Foundation Publishing, 10301 Yellow Circle Dr., Minneapolis, MN 55343. NCP (Dec 87)

Cricket Draw is an object-oriented drawing program that will produce
‡‡‡‡‡ stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects is just a point and click away. $295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 87)

Cricket Graph easily generates 12 graph types. Multiple windows can
‡‡‡‡‡ be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, LaserWriter and plotter compatible. $195. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (Jun 86)

Crystal Paint creates an electronic kaleidoscope. It is *MacPaint*'s Brush
‡‡‡‡½ Mirrors gone wild in a small, simple, yet wonderful application. Does not work in color on Mac II. *MultiFinder* friendly. Requires 512K+. $49.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Feb 88)

DeskPaint is a full-blown paint program as a desk accessory. Allows you
‡‡‡½ to spruce up a graphic while in another application. Imports and exports *MacPaint* and TIFF images. Great for DTP, but not enough features to rival the leaders in paint programs. Zedcor, 4500 E. Speedway, Tucson, AZ 85712-5305. NCP (Mar 88)

"Draw It again Sam..." (v. 1.03) is an object-oriented graphics pro-
‡‡‡‡ gram, like *MacDraw*, that adds such useful wrinkles as layered drawing, on-screen libraries and color. Manual is weak. Requires 512K+ and an 800K disk drive. $150. Aba Software, PO Box 850, Frazer, PA 19355. NCP (Feb 88)

Easy3D is a three-dimensional, solid modeling masterpiece. Four vari-
‡‡‡‡ able light sources, powerful sculpting tools and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. $149. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

EZ Draft is a high-level CAD application. Does things usually only found
‡‡‡ on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. $1995. $500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May 87)

FastForms! Construction Kit is both a fast and efficient business
‡‡‡‡‡ forms creator (a drawing program) and a specialized application (and DA) to fill out the data fields in your forms. $149 (US). Shana Enterprises, 9704 54th Ave., Suite 200, Edmonton, Alberta T6E 0A9, Canada. NCP (Nov 87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different items
‡‡‡‡ are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. CasadyWare, PO Box 223779, Carmel, CA 93922. NCP

Fontastic is the best font editor now available for the Mac. Features a
‡‡‡‡½ large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles. $49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The fonts
‡‡‡‡½ created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, PO Box 865410, Plano, TX 75086. CP

FullPaint is an expanded version of *MacPaint*. Features include full-
‡‡‡‡‡ screen drawing, multiple documents opening simultaneously, brush editing, movable tool palettes, special text effects and much more. It fills the gaps left by *MacPaint*. $99.95. Ann Arbor Softworks, 2393 Teller Rd., Newbury Park, CA 91320. NCP (Jun 86)

GraphicWorks 1.1 is a powerful drawing and painting program that
‡‡‡‡ creates high-resolution bit-maps. Easels contain graphics, balloons hold text and both reside on panels. Graphic primitives are now a separate tool. $99.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Oct 87)

Graphidex indexes *MacPaint* and *MacDraw* format graphics without
‡‡½ removing them from their original documents. Indexed graphics are retrieved via the *Graphidex* DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (*Paint* format) images but the design is questionable and the execution imperfect. Requires 512K. $124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 87)

GridMaker is a tool for artists who use perspective. The program
‡‡‡ automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage point are easily modified. $49. FolkStone Design, PO Box 86982, North Vancouver BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and power-
‡‡‡‡½ ful drawing technique. Program uses templates for precise and detailed art work. Requires 512K+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until registered. (Jul 87)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip art.
‡‡‡‡½ Consists of *MacPaint* documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matters. $79.95 each volume; $149.95 set. Qualitas Trading, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Apr 87)

LaserFonts are new fonts for the LaserWriter. Users download them to
‡‡‡‡ their machines. Very high quality and very simple to use. *Willamette* looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. $34.95 to $44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

LaserPaint needs a major fix and quick. Its clumsy interface
‡ makes it a slow program. There's good laser output, if you persevere through the creation of a document. The support is scads better than the documentation, which is lousy. Version 1.1.4. $495. LaserWare, PO Box 668, San Rafael, CA 94915. CP (Jan 88)

The Mac Art Dept. is a collection of over 150 graphic images ranging
‡‡‡‡ from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. $39.95. Simon & Schuster, Computer Software Div., 1 Gulf + Western Plaza, New York, NY 10023. NCP (Mar 86)

MacCalligraphy is the best simulation of brush painting in any graphics
‡‡‡‡½ program. User-designed Seals and Touches enable you to design your own signature tool and the style of brush you use. Comes with a clip art disk. $175. Qualitas Trading, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Feb 88)

MacDraft is an object-oriented graphics program. It sports advanced
‡‡‡‡ features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. Best used to complement *MacDraw*, not replace it. $239. Innovative Data Design, 2280 Bates Ave., Concord, CA 94520. NCP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can be
‡‡‡‡½ used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. $195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat
‡‡‡ sketchy Mac interface, shading speed slow (but acceptable),

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DATA*VIZ*

grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. $40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

MacPaint is the graphics program that started a whole new genre. Still the best freehand graphics tool. Version 1.5 supports 512K+ Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. $125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP

MacTEX (v. 2.0) is the TeX environment of choice for hardcore TeX users on the Macintosh. Very intimidating for others. Painfully slow and visually unattractive. Requires 1M+. $750. FTL Systems, 234 Eglington Ave. East, Toronto, Ontario M4P 1K5, Canada. NCP

Mac3D 2.0 is a feature-laden 3D program with a *MacDraw*-like interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a powerhouse. $249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan 87)

MapMaker produces maps and analyses of related geographical data. Additional data disks available. Documentation could be better. Requires 512K+; 2nd drive recommended. $295. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 87)

MGMS: Professional CAD for Macintosh offers more than 200 functions. Very complete, capable program. Groups, Dimension, Libraries, etc. are standard. Sometimes confusing — designed for experienced, professional CAD user, not the novice. Full plotter support. 512K+ or Mac XL. $799. Micro CAD/CAM, 3230 Overland Ave., Los Angeles, CA 90034. NCP (Nov 87)

MiniCad V3.0 is a pro level CAD package. Vast array of features, many accessible only through command/shift/option key combinations. Works in 2D or 3D with easy transition from one to the other. *MacDraw*-like interface makes it easy to learn and use. Requires 512K+. Diehl Graphsoft, 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct 87)

PageMaker uses a graphics studio metaphor to make this layout program a natural for pasteup artists. Version 2.0 adds automatic kerning and hyphenation. Still the standard. Excellent documentation. Could use a global search and replace for design elements. $495. Aldus, 411 First Ave. South, Seattle, WA 98104. NCP (Oct 87)

Phoenix 3D is an economical 3D drawing package, with features that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. $49.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase is a powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval. $69.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Sep 87)

Portfolio: Designs for Newsletters provides over 20 templates for 2-page newsletters with pre-set columns, headlines, graphics and captions. Documentation provides excellent tutorial in page design. Requires 512K+; *PageMaker*. $79.95. Aldus, 411 First Ave. S., Suite 200, Seattle, WA 98104. NCP (May 87)

The Print Shop makes it easy to create greeting cards, signs, banners and letterheads. Uses its own special graphics and can import *Paint* files. Hard disk users get version 1.02 or higher. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sep 87)

Quark XPress is a high end desktop publishing application. Layout is done in block format; powerful lining tool ties blocks together. $695. Quark, 2525 West Evans, Denver, CO 80219. NCP (Sep 87)

Ragtime is an ''Integrated Page Processor'' with text, graphics and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy-to-use program. Requires 512K+. $395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Apr 87)

Ready, Set, Go! 4 has an elegant interface and excellent manual. Powerful text wraparounds, fast word processor with hyphenation and spelling check and custom stylesheets. Requires

512K+. $495. Letraset, 40 Eisenhower Dr., Paramus, NJ 07652. NCP (Feb 88)

Scoop could someday be the world's best desktop publishing program, but version 1.0 isn't it. There are various ways to cause the program to bomb which need to be fixed. The manual is poorly organized and lacks tutorials. $495. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP (Feb 88)

Slide Show Magician 1.3 is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. $59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Space Edit is a 3D CAD program. Display shows top, front, side and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 512K+. $625. Abvent, 9903 Santa Monica Blvd., Beverly Hills, CA 90212. CP (Jul 87)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from *MacPaint;* allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SunShine Graphics Library is a collection of 46 400K disks (to date) with a wide variety of high-quality digitized images stored as *MacPaint* files. $20/disk: discount scale for multiple purchases. SunShine, Box 4351, Austin, TX 78765. NCP (Feb 87)

SuperPaint is a powerful, easy-to-use graphics program with all the best features of *MacPaint* and *MacDraw* — and then some. Among the new features, LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. $149.95. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87)

TEXtures (v. 1.0) is an implementation of TeX, the big daddy of typesetting programs. Good for people trained on mainframes in the early days. Otherwise very sticky with a high learning curve. Requires 512K+. $495. Addison-Wesley, Jacob Way, Reading, MA 01867. NCP

VideoWorks II is an easy-to-use animation tool — the best available on the Mac. Has an Overview mode that acts as a slide show carousel for presentations. Works in color on the Mac II. $195. Requires 1M+ and an 800K drive. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Mar 88)

WetPaint consists of two 3-disk volumes of very high quality clip art. Also includes the *Art Roundup* DA, the best art browser/editor yet. Volume 1 or 2, $39 each; both volumes, $59. Available in *PictureBase* format for $15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sep 87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the *Mac the Knife* fonts and a lot more, including 2 useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: $39; both volumes: $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

COMMUNICATIONS

AppleShare is the long awaited file sharer from Apple. Software-based, *AppleShare* requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised *Finder*. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87)

ComServe allows you to share a Hayes-compatible modem over an AppleTalk network. You can call out, but you can't call in. Works with most telecommunications packages. $195 per server. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. CP (Feb 88)

Desktop Express is a simple to use, semi-automated program for using MCI Mail and Dow Jones News/Retrieval. Performance is traded

off for ease of use. Requires 512K+. $149. Dow Jones, PO Box 300, Princeton, NJ 08543. NCP (Jan 88)

HomePak is a package consisting of *HomeTerm,* an excellent, simple
♣♣ telecommunications program with strong macro features; *HomeFind,* an electronic filer as bad as *HomeTerm* is good; and Apple's *Edit,* a simple, non-HFS-compatible text-file editor. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Sep 86)

InBox is an easy-to-use mail system. It's called up from a desk accesso-
♣♣♣♣½ ry. Has a very slick interface. Dedicated Mac not required. $350 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost $125 each. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May 87)

InTalk comes with its own communications command language able to
♣♣♣♣½ do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample setup documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

MacTerminal provides basic telecommunications and terminal emula-
♣♣½ tion for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation — it is superb at those. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microphone is a high-powered terminal program that's easy enough for
♣♣♣♣½ novices. Very powerful command language allows full automation of communications, if desired. $149. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jul 86)

Microsoft Mail is an electronic mail system that runs under AppleTalk.
♣♣♣♣½ Supports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, $299.95; 5 to 10 users, $499.95; 11 to 20 users, $749.95; 21 or more users, $949.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87)

Red Ryder is a full-featured telecommunications program that supports
♣♣♣♣♣ MacBinary, Xmodem and Kermit. Has big screen support, auto procedure creator, and up to 30 keyboard macros. This is the cream of the crop (in late 87). $80. Freesoft, 150 Hickory Dr., Beaver Falls, PA 15010. NCP (Dec 87)

Smartcom II balances power and ease of use. Capable of unattended
♣♣♣♣½ operation and has a very powerful command language. Supports MacBinary, Xmodem and Hayes Verification protocols. The large screen buffer can easily be archived. $149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jul 86)

Telescape is the power telecommunicator's terminal program.
♣♣♣ Can be configured to emulate any terminal. The documentation does not adequately explain the many features. $125. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 86)

TOPS is a file server that is designed to network computers with different
♣♣♣♣½ operating systems. The current system will support Macs, MS-DOS compatibles and UNIX. Access to files and subdirectories is transparent to the user; they appear as Mac folders. Only handles ASCII or Text files. $149 for Mac version. $389 for PC's (comes with add-on card). TOPS, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May 87)

VersaTerm features include DEC VT100 and VT52, Tektronix 4014
♣♣♣♣½ graphics terminal and Data General DG200 emulation. Supports Xmodem and *MacTerminal* Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several special
♣♣♣♣½ features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. $295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr 87)

WORD PROCESSORS

Document Compare allows users to compare any two *MacWrite* 4.5,
♣♣♣ ASCII or MDS documents. Differences in spelling, punctuation, formatting and wording are detected. Documents can be printed out with differences highlighted. $99. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (May 86)

Document Modeler can automate much of a professional office's corre-
♣♣♣♣½ spondence. Comes in two parts: *Template Maker* and *Document Maker.* Initial setup requires time and is complex. $299.95. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (Mar 87)

Doug Clapp's Word Tools is a useful punctuation and style editing
♣♣♣♣ program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sep 87)

Expressionist is a powerful DA that allows you to create complex math-
♣♣♣♣♣ ematical equations from within an application. Equation manipulation has never been easier. $79.95. Allan Bonadio Associates, 1579 Delores St., San Francisco, CA 94110. NCP (Jul 87)

JustText is a professional level word processor and page makeup pro-
♣♣♣♣½ gram that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. $195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

Kadmos Greek Font is a full character set of ancient Greek that prints on
♣♣♣½ any PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort. Allotype Typographics, 1600 Packard Rd., Ann Arbor, MI 48104. NCP. (Oct 87)

Laser Author is a high-powered, technically oriented word processor.
♣♣♣½ Good math setting capability. Has style sheets, word count and page layout capability. $199.95. Firebird Licensees, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Lookup is an on-call, quick single word spelling checker. Designed for
♣♣♣♣♣ the way writers really work. Uses the 93,000+ word *Spellswell* dictionary. $49.95. Working Software, 321 Alvarado, Suite H, Monterey, CA 93940. (Dec 87) NCP

MacProof is a grammar, style and spelling checker that's like having
♣♣♣♣½ your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. $195 for stand-alone version; $2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP (Apr 87)

Macspell+ (version 1.10) is a spelling checker that installs as a desk
♣♣♣♣ accessory. Works easily with *MacWrite* 4.5 and 2.2 and *Word,* but has some drawbacks. New version just available. Requires 512K+, two drives or hard disk. $99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP

MacWrite is the basic Mac word processor. While it doesn't have every
♣♣♣♣ bell and whistle, it is more than adequate for most users. Features include global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. $125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP

MergeWrite is a mail merge program for *MacWrite* (also works
♣♣♣½ with ASCII files). Program combines names and addresses from a data file into predefined fields in a form letter. Also allows simple conditional IF-THEN-ELSE equations. $49.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. NCP (Dec 87)

MindWrite integrates outlining and word processing better than any-
♣♣♣♣ one. Version 1.1 fixes many problems of the earlier version. Sophisticated search and select options. Unimpressive speed. $295. MindWork Software, PO Box 2223, Monterey, CA 93942. NCP (Feb 88)

QUED/M (v. 2.01) is an excellent text editor that saves documents in a
♣♣♣♣½ form readable by most computers and printers. Doesn't support

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graphics or multiple fonts. Programming language allows creation of data base. $129. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 88)

QuickWord is a word processing accessory that adds sophisticated
♦♦½ glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP

Scriptor is designed for producing standard format scripts. Starts
♦♦♦♦ with a *Word* document. As you change your *Word* document, *Scriptor* will reformat, renumber and reprint the script. Supports LaserWriter and daisywheel printers. $295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May 87)

Spelling Champion is a fast and accurate batch-type spelling checker.
♦♦♦♦ Backup feature allows you to undo corrections in a paragraph. Works only with *MacWrite* 4.5. $39.95. Champion Software, 6617 Gettysburg Dr., Madison, WI 53705. NCP (Oct 86)

Spellswell is an effective and powerful standalone spelling
♦♦♦♦½ checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. Very good dictionary, good value. $74.95. Working Software, 321 Alvarado, Monterey, CA 93940. NCP (May 86)

Thunder! is one of the best spelling checkers around. Features Learned
♦♦♦♦♦ Words (a superb glossary) and statistics. A very fast DA, it works interactively and in selection mode. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 86)

Word 3.01 fixes many of the bugs of the justly maligned 3.0. Still, it's
♦♦♦♦½ the most feature-laden word processor around. Also has Microsoft's somewhat unusual view of what the Mac interface is. Esoteric command key combinations. Requires 512K+. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073. NCP (Mar 88)

WorksPlus Spell is a speedy spelling and hyphenation checker for
♦♦♦♦½ *Microsoft Works*. It includes a glossary for abbreviations and time/date stamping. The biggest drawback is its limitation to one program. $59.95. Lundeen & Associates, PO Box 30038, Oakland, CA 94604. NCP (Oct 87)

WriteNow for the Macintosh has many of the features of *MacWrite*
♦♦♦♦½ and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. $175. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Mar 87)

SYSTEM SOFTWARE

HyperCard is a totally unique program for the Mac. It uses an index card
♦♦♦♦ metaphor. It contains a programming language, *HyperTalk*. Requires 1M+. Free with new Macs, otherwise $49.95. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Dec 87)

System Tools 5.0 is the Apple System upgrade for Mac Plus, SE and II
♦♦♦♦ owners. It contains *MultiFinder* (a multitasking environment), a LaserWriter spooler, and a Control Panel resource to add color on the Mac II desktop. Takes 1M+. $49. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 88)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has practically
♦♦♦♦½ all the power of a standalone program, and then some. Can save files as *Acta* outlines, *MacWrite* or text files. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Business Class is a *HyperCard* stack that contains world travel informa-
♦♦♦½ tion and itinerary planning. Uses maps to locate countries of interest, but it lacks United States domestic travel information. Requires 1M+ and *HyperCard*. $49.95. Activision, 2350 Bayshore Pkwy., Mountain View, CA 94043. NCP (Mar 88)

Calliope is a new type of outlining program. Chunks of information are
♦♦♦ manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for *MacWrite* editing. $99. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

Comment (previously known as *Memorandum*) is the electronic equiva-
♦♦♦½ lent of Post-it Notes. Notes can be attached to many different types of documents. Doesn't work well with *SuperPaint* or *Microsoft Works*. An alarm clock feature alerts users of Timed Notes. $99.95. Deneba Systems, 14206 SW 136th St., Miami, FL 33186. NCP (Nov 87)

DecisionMap organizes data to facilitate decision making. Unique
♦♦♦ weighting abilities make this a powerful tool. The decision analysis process is long and sometimes complex, but never difficult. $145. SoftStyle, 7192 Kalanianole Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere flowchart-
♦♦♦♦ ing. Complex, detailed program aimed at software pros. $250. Meta Software, 150 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 87)

DOES WILLIAM F. BUCKLEY, JR. REALLY NEED A THESAURUS?

If you've ever watched his show Firing Line, you know Bill Buckley to be one of the most articulate, erudite people who ever spoke the King's English. His superior vocabulary makes you lean forward in your chair to keep up with him. If anyone could get by without a thesaurus, he could. But we have his letter praising our comprehensive, contemporary Word Finder. No big words, just a nice letter saying how much he liked it and uses it. Didn't mention the 220,000 synonyms for 15,000 words. Didn't say anything about how in just seconds Word Finder performs the whole cycle of look-up and replacement, so you continue writing

without taking your eyes off the screen or your fingers off the keyboard. Nothing about how simple it is—just select the word you want an alternate for, and up pops a window of synonyms. Pick a new word and the window disappears, and your new word takes the place of the old word. But he did say: "It's a bloody miracle. Word Finder has changed my life. I never used to use a thesaurus." * To order call 800-828-6293 (in New York State call 716-377-0130).

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♦♦♦♦♦ mediums. Analyzes cost/benefit of a campaign in terms that even jaded Mad. Ave. execs will find innovative. Includes barchart and tabular output. Requires 512K+. $495. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 88)

Focal Point is a *HyperCard* stack that ties together a calendar, phone
♦♦♦♦½ log, client accounts and more in one easy-to-use organizational tool. Requires 1M+ and *HyperCard*. $99.95. Activision, 2350 Bayshore Pkwy., Mountain View, CA 94043. NCP (Mar 88)

Guide allows you to "cross reference" from within a document
♦♦♦♦½ using hypertext. You can set up words or sections of the document so that double-clicking brings up explanatory material, graphics and other useful items. The word processing and formatting functions, however, are limited. $135. OWL International, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr 87)

Instant Expert is an excellent way to learn the mechanics of creating an
♦♦♦½ expert system. The inference engine (that ultimately finds the answer) is visible. Lacks a true Mac interface. Version 1.0. $49.95. Human Intellect Systems, 1670 S. Amphlett Blvd., Suite 326, San Mateo, CA 94402. NCP (Jan 88)

MacProject allows a user to plan and track a project from beginning to
♦♦♦ end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. $195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Mar 86)

MacSMARTS can create small standalone expert systems. Features
♦♦♦ hypertext connections to Paint, PICT, SYLK and text files. Still a little buggy. Requires 512K+. Version 1.03. $149.95. Cognition Technology, 55 Wheeler St., Cambridge, MA 02138. NCP (Jan 88)

MacSpec is a specification writing tool, a cross between word and
♦♦♦ outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a simple word processor. HFS-compatible. $199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

Micro Planner Plus is a great project management system. Outstanding
♦♦♦♦½ analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in *MacDraw* format for further work. Uses standard print drivers. HFS compatible. $495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec 86)

MORE is an incredibly powerful outline processor with gobs of great
♦♦♦♦♦ features: instant charts, math capabilities, multiple windows, font and style control, templates and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. $295. Living Videotext, 117 Easy St., Mountain View, CA 94043. NCP (Jan 87)

PowerPoint is a comprehensive presentation creation tool. Handles
♦♦♦♦ 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Aug 87)

ThinkTank 512 is a very fast and intuitive organizational tool. Full
♦♦♦ keyboard control is possible. Can store and paste graphics into outlines. Slide show feature allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 117 Easy St., Mountain View, CA 94043. CP (Jan 86)

DESK MANAGERS

BatteryPak is a set of 9 handy desk accessories including scientific and
♦♦♦♦♦ RPN calculators, a background text file printer and a 250-page note pad with search and phone dialing capabilities. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 85)

Executive Office is a jack of all trades office application. Good data
♦♦♦½ base, word processing, graphics and minispreadsheet. Available on 400 or 800K disks; get the 800 if you can. $249.99.

DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar 87)

Front Desk lets small businesses and offices easily keep track of per-
♦♦♦ sonnel schedules, activities and payments. The program can keep track of up to 15 employees, functioning as a day-, weekand month-at-a-glance calendar. $149.95. Layered, 529 Main St., Boston, MA 02129. NCP (Dec 85)

MockPackage+ is a set of extremely powerful DAs. Includes a text
♦♦♦♦½ editor, text printer (supports LaserWriter), charter, terminal and EZmenus. HFS compatible. $35. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Mar 87)

My Office lets you handle your files and papers in much the same way
♦♦♦♦ you did before you got a computer. Excellent use of graphic symbols. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools that can
♦♦♦ be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec 85)

SideKick 2.0 beefs up original *SideKick* DAs and adds two major new
♦♦♦♦ ones — *MacPlan*, (formerly *Click-On Worksheet*) and *Outlook*, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Smart Alarms is the best reminder system for the Mac. Easy to use,
♦♦♦♦½ versatile and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. $49.95. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. *Menu Key*
♦♦♦♦½ adds Command key sequences to programs; *View* allows looking at and moving data between up to 8 *MacWrite* documents; also included are *BackPrint, Touch 'n' Go, Blank, Encrypt* and *Launch*. $59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86)

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint Cutter*
♦♦♦♦ alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Nov 85)

AutoSave DA is insurance against system crashes. It saves your work
♦♦♦ automatically at intervals from 1 to 99 minutes. Compatible with many applications, but not recommended for use with data bases. $49.95. Magic Software, 1706 Galvin Rd. S., Bellevue, NE 68005. NCP (Jan 88)

Colorizer adds pigments to the desktop and black and white applica-
♦♦♦ tions. Also colors PICT graphics. System resources include saving and printing color screens. A useful novelty that'll run its course as developers add color to apps. Requires Mac II. $49.95. Palomar Software, PO Box 2635, Vista, CA 92083. NCP (Jan 88)

Copy II Mac does efficient sector and bit copies and in its latest version
♦♦♦♦♦ can back up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools,* a multi-use utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr 86)

DiskExpress unfragments disk volumes by reorganizing data into con-
♦♦♦♦ tinuous sectors and arranging files to slow down further fragmentation. Works with *MacServe,* floppy drives and most hard drives. Requires 512K+. $39.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb 87)

DiskFit is a utility for backing up and restoring hard disk files. Creates a
♦♦♦♦½ "SmartSet" of floppy disks so incremental backups only update files modified since the last backup procedure. Backs up to floppies or another hard disk. Requires 512K+. $74.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jun 87)

MINIFINDERS

DiskQuick is an easy-to-use cataloging program. Criteria selection op-
♣♣♣♣ tion for generating subcatalogs. Requires 512K+. $49.95.
Ideaforms, P.O. Box 1540, Fairfield, IA 52556. NCP (Apr 87)

Disk Ranger is a speedy cataloging program that doubles as an efficient
♣♣♣♣ labelmaker. Comes with pinfeed labels. Works with regular and
hard disks. Can catalog HFS systems. $34.95. Graham Soft-
ware, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Mar 86)

DiskTop 2.0 is a desk accessory *Finder* replacement of extraordinary
♣♣♣♣½ power and ease of use. Comes with the useful *LaserStatus* DA
and *Widgets* application. The extras alone are worth the price.
Requires 512K+. Upgrade from version 1.0, $7; $10 with new
manual. $39.95. CE Software, 801 73rd St., Des Moines, IA
50312. NCP (Aug 87)

Dubl-Click Calculator Construction Set lets users design personalized
♣♣♣♣½ calculators with a variety of standard and special functions.
Finished calculators can be saved as installable desk accesso-
ries or as clickable applications. $59. Dubl-Click Software,
18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

Fedit Plus is the file and disk editor for everyone, from newest Mac owner
♣♣♣♣♣ to oldest. It can do more for your disks and files than any other
application. Can recover deleted MFS files. If you own a Mac, get
it. HFS-compatible. $49.95. MacMaster Systems, 108 E. Fre-
mont Ave., #37, Sunnyvale, CA 94087. NCP (Sep 86)

Findswell is an indispensable utility that installs a new button in the Open
♣♣♣♣♣ Dialog box of virtually every Macintosh application. Press the
button, type a search string, press Find and *Findswell* searches
for any files that match. Click Open or double-click to open the
correct file. Requires 512K+. $49.95. Working Software, 321
Alvarado, Monterey, CA 93940. NCP (Nov 87)

FlashBack is a utility to back up HFS hard disks onto floppies. A unique
♣♣♣ graphic display of the HFS directory facilitates file selection. The
program can handle files larger than 800K. $59.95. Mainstay,
5311B Derry Ave., Agoura Hills, CA 91301. NCP (Nov 86)

Glue adds a print-to-disk capability to many programs. *ImageSaver* in-
♣♣♣♣½ stalls as printer driver; *Viewer* allows copying and printing of *Glue*
files. Handy utility for desktop publishers. $59.95. Solutions Inter-
national, Box 989, Montpelier, VT 05602. NCP (Dec 86)

Hard Disk Util uses patch files to allow users to mount and run specified
♣♣♣♣½ programs on their hard disks. The list of patches is constantly
expanding. $89.95. FWB Software, 2040 Polk St., San Francis-
co, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk backup utilities.
♣♣♣♣½ Back up by file/folder or last changes. Backup specifications can
be saved as templates. Good graphic interface. Reliable pro-
gram. $49.95. PCPC, 6204 Benjamin Rd., Tampa, FL 33614.
NCP (Dec 86)

HFS Locator Plus is *the* essential HFS desk accessory. It can search for
♣♣♣♣ a file by name or date of creation, create folders, move files from
one folder to another, set a program to launch while in an appli-
cation. $39.95. PBI Software, 1163 Triton Dr., Foster City, CA
94404. NCP (Sep 86)

Icon-it! (v. 1.0) lets you create icons to use as an alternative to menu
♣♣♣♣½ commands. Comes with 47 icon templates or you can create
your own. *MultiFinder*-hostile. $79.95. Olduvai Software, 7520
Red Rd., South Miami, FL 33143. NCP (Feb 88)

LabView automates the repetitive task of controlling laboratory instru-
♣♣½ ments. Rich icon-based language allows flow chart type pro-
gramming, but response is slow. Requires 512K+. $1995.
National Instruments, 12109 Technology Blvd., Austin, TX
78727. NCP (Aug 87)

LaserServe is a printer spooler for AppleTalk networks. After installation
♣♣♣♣♣ all operations done via a desk accessory. Works with both *Mac-*

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Software & Hardware

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Writer), $64.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 87)

'Ncryptor is a simple, safe program that lets users password their files.
♦♦♦♦ The same program is used for encoding and decoding. This is one of the best products in its category. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Packit III is an essential utility. Primarily used to temporarily "glue" files
♦♦♦♦½ together, it can also compress and encrypt. Feeware. $10, $10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan 87)

PowerStation is an extremely easy to use, versatile and powerful *Finder*
♦♦♦♦♦ substitute. Loaded with power user features. Comes with *Pyro!* $59.95. Software Supply, 599 N. Mathilda Ave., Suite 210, Sunnyvale, CA 94086. (Dec 87) NCP

Printworks for the Mac is a comprehensive software-based dot-matrix
♦♦♦♦ printer control system. Optimizes printing from different applications, and is easy to use. Requires 512K+. $75. SoftStyle, 7192 Kalanianaole Hwy., Honolulu, HI 96825. NCP (Aug 87)

Programmer's On-line Companion puts an abridged version of *Inside*
♦♦♦ *Macintosh* in your system for reference. Simply read the text or transfer some or all of it directly into your normal editing window. Non-Macish interface makes the program confusing, somewhat difficult to use. $34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (Jul 87)

Quick & Dirty Utilities, Volume One is a disk full of handy programs.
♦♦♦♦½ Several desk accessories include a menu bar clock and a terminal emulator. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

QuicKeys lets you make full use of your keyboard. Assign any command
♦♦♦♦ (menu choices, DAs, etc.) or series of text blocks and/or command to any key or key combination. Enormously powerful;

necessary for Apple Extended Keyboard owners. Requires 512K+. $99.95. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Jan 88)

RamSnap is a RAMdisk and disk cache in one easy to use package. Can
♦♦♦♦ store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

Read-It! (v. 1.0) is the best consumer value in optical character recogni-
♦♦♦♦ tion software. Works with any scanner that saves images as a bit map, PICT or TIFF file. Comes with type tables that can be customized. $295; ThunderScan version, $149.95. Olduvai Software, 7520 Red Rd., South Miami, FL 33143. NCP (Feb 88)

SmartScrap and The Clipper are two useful desk accessory utilities for
♦♦♦♦½ graphics work. *SmartScrap* is a major enhancement to the standard Scrapbook DA. *The Clipper* provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, Montpelier, VT 05602. NCP (Jul 87)

Stepping Out is a software virtual screen extender. Lets you create a
♦♦♦♦♦ screen as large as memory allows. 9-inch screen is a "view" to larger screen. Also has reduction features. Amazing. $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Mar 88)

Suitcase is a transparent program that automatically lets you
♦♦♦♦♦ use all your fonts and DAs. Foolproof and indispensible. Comes with *Pyro!*, the best screen saver. Requires 512K+. $59.95. Software Supply, 599 N. Mathilda, Sunnyvale, CA 94086. NCP (Nov 87)

SuperLaserSpool is a LaserWriter spooler. Very fast because it does
♦♦♦♦ conversion to PostScript in the background, but doesn't print a faithful rendition of *PageMaker* documents as a result. $149.95

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single user, $395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (Jun 87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This pro-
♦♦♦♦♦ gram lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is nearly instantaneous. Requires 512K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Jun 86)

Tempo is a desk accessory that allows most Mac commands to be
♦♦♦♦ intelligently recorded and played back. Capabilities include pausing, conditional branching and macros that work between applications. $99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

TMON is *the* debugger for the Mac. This isn't open to question. *TMON* is
♦♦♦♦♦ simply the best. Comes with the latest version of Darin Adler's Extended User Area. $149. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download is a desk accessory designed specifically to increase
♦♦♦♦½ the speed of Xmodem data transfers from national data bases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. $39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

II in a Mac is a graphically oriented Apple II emulator with unique fea-
♦♦♦ tures, such as text and graphics copy from Apple screen to Mac Clipboard. Suffers speed problems associated with "virtual machine" emulation. $69. Micro-W Distributing, 1342B Route 23, Butler, NJ 07405. CP

TypeNow is a desk accessory that allows the Mac and ImageWriter to
♦♦♦♦ function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 86)

LANGUAGES

AAIS Prolog is a fast standard Prolog with excellent debugging and error
♦♦♦♦ handling. Good for serious program development. Documentation is not as good as the program. $150. Advanced AI Systems, PO Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar 87)

Aztec C is a C language that will appeal to users with a UNIX background.
♦♦♦♦ It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. $75 beginners, $199 basic system, $299 development system, $499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

Basic Compiler is the long awaited compiler for *Microsoft BASIC*. The
♦♦♦½ interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87)

ExperCommon Lisp is a LISP development system. Not fully
♦♦♦ Common LISP compatible, but creates good compiled code and standalone applications. Requires 1M+. $995. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. NCP (Aug 87)

ExperLISP is a useful programming language for high-level program-
♦♦♦ mers. The more you use it, the more you'll figure out about it. $495. Requires 512K+. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

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ExperLogo is a version of the popular teaching language, Logo. Features
‡‡‡ three-dimensional graphics using "bunnies" rather than usual "turtles." Very speedy, smooth program. Comes with an excellent manual. $149.95. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. Has the
‡‡‡ ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. $495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 33108. NCP (Mar 87)

Lightspeed C provides an integrated environment for developing desk
‡‡‡‡½ accessories, applications and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. $175. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Apr 87)

Lightspeed Pascal is a fast, powerful development system for Pascal
‡‡‡‡‡ programming. Fully integrated Mac-like environment. Requires 512K+. $125. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Feb 87)

LPA MacProlog (v. 2.0) is a much improved program that includes an
‡‡‡‡ incremental and optimizing compilers, a graphics environment package and C and Pascal submodules. Requires 1M+. $495. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Feb 88)

MacAsm is a software development system that allows programs to be
‡‡‡ written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. $125. Mainstay, 5311-B Derry Rd., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this popular
‡‡‡‡ development language. Assembler and linker included. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers use it
‡‡‡ to save time and effort when developing standalone applications for the Mac. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth Plus is an excellent implementation of the popular Forth
‡‡‡‡ programming language. New, reduced price, $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local
‡‡‡‡ variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K+. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

Macintosh 68000 Development System is a fairly traditional assem-
‡‡‡‡ bly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive and a resource compiler. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP
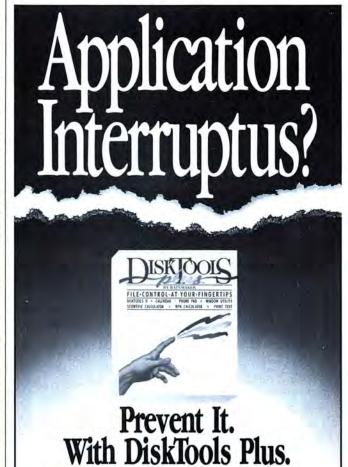
Macintosh Pascal is Apple Computer's version of this very popular
‡‡‡ programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabilities.
‡‡‡ Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Jun 86)

MacScheme+Toolsmith is a Mac version of Scheme, a LISP dialect.
‡‡‡‡‡ Beautiful implementation, marred only by relative slowness compared to similar products. Get *Toolsmith*. Requires 1M+. $395. Semantic Microsystems, 4470 S. W. Hall, Beaverton, OR 97005. NCP (Aug 87)

Megamax C is an easy to use, full version of C. Has a compiler, linker,
‡‡‡‡ disassembler, editor and much more. Good for beginners. Excellent documentation. $299.95. Megamax, PO Box 851521, Richardson, TX 75085. NCP

Microsoft BASIC was the Mac's first programming language. This inter-
‡‡‡‡ preter (it's not a compiler) now supports the Toolbox and the

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whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available. $99. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP

MIDIBasic is a library of simple, but highly useful routines for writing MIDI
‡‡‡‡ software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus BASIC. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Object Logo is an object-oriented programming language with access to
‡‡‡‡ the Toolbox. Good product, but can't produce standalone applications. Requires 512K+. $79.95. Coral Software, PO Box 307, Cambridge, MA 02142. NCP (Aug 87)

Personal Prolog is an inexpensive and well-documented program. Has
‡‡‡‡ no debugging or search and replace facilities, making it a more appropriate tool for learning than development. Documentation and use of Mac interface are excellent. $64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar 87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has exten-
‡‡‡‡ sive debugging facilities, but you'll need separate *Toolbox* disk with 58 additional predicates. Drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

QUED (Quality Editor for Developers) is the ultimate source code
‡‡‡‡ editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Data Base Toolkit is an ISAM type data base that provides fast and
‡‡‡‡ efficient administration of large data files in applications developed with *TML* compiler. Supports multiple open index files. $89.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, capable
‡‡‡‡‡ of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K. $99.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Jun 86)

TML Source Code Library shows how to write programs that use custom
‡‡‡‡½ definition routines, speech, serial drivers, split bars and other topics. Provided on three 400K diskettes. Requires *TML Pascal*. $79.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming sys-
‡‡‡‡ tem for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating standalone
‡‡‡‡ applications that take advantage of Mac's unique features and abilities. Includes *Edit*, *RMaker* and *MacInTalk*. Requires 512K. $89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec 86)
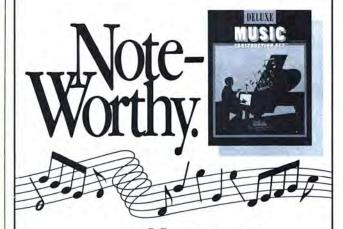
EDUCATION

Business Simulator is a training tool in a simulation game. Make deci-
‡‡‡‡ sions that manage the company through several stages over 25 years. Decisions become more difficult over time. Requires 1M+, 2 disk drives (one must be 800K). May be run from a hard disk. $69.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 87)

ChipWits is a combination game and teaching tool. Players create
‡‡‡½ programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit's* built-in icon-based programming language (IBOL). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

Course Builder (version 2.0) creates standalone educational applica-
‡‡‡‡ tions. An easy-to-learn dedicated programming language uses blocks and arrows. Graphics, animation and sound can be integrated. Version 2 allows mathematical calculations. Poor docu-

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mentation. $395, plus $10 shipping. TeleRobotics International, 8410 Oak Ridge Highway, Knoxville, TN 37931. NCP (Oct 87)

KidsTime is a package of five quality educational programs for children
♣♣♣♣ between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. $49.95. Great Wave, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Oct 86)

MacEdge and **MacEdge II** each contain 8 reading or math drill programs
♣♣♣ for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacType offers structured typing instruction. Can teach both standard
♣♣♣♣ and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. $49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style
♣♣♣ action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

Sensei Physics is a capable, intelligent, well-designed study aid. Covers
♣♣♣♣½ Vectors to Thermodynamics to The Nature of Light. Animated experiments let you try out concepts. Requires 512K+. $99.95. Broderbund Software, 17 Paul Dr., San Rafael, CA 94903. CP (Jan 88)

Subli-Mac is a self-hypnosis program, combining subliminal, relaxation
♣♣½ and positive-self-image techniques. Flashes a brief user-written message (against a diversionary pattern) at your subconscious. Dangerous near hard disks. Manual suffers from terminal California-ese. $39.95. Psy-Den, PO Box 248, Champlain, NY 12919. NCP (Jan 88)

ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. It has
♣♣♣ a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 86)

Alter Ego simulates the entire lifetime of a fictional character. The
♣♣♣♣ player's reaction to each multiple-choice event shapes the character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. $59.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jun 86)

The Ancient Art of War gives users a chance to refight some famous
♣♣♣♣½ campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. $44.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain control of
♣♣♣♣½ five Power Points on a checkerboard grid. The shifting cycles of squares' colors keep the balance of power ever-changing. One or two players. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Balance of Power is the world's first computer peacegame. This simula-
♣♣♣♣♣ tion allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen and
♣♣♣♣ paper game of *Battleship*. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI 48197. NCP (Jun 87)

Borrowed Time casts players as detectives who have to solve their own
♣♣♣♣ murder — before it happens. This game requires players to think

and act like a detective to solve the game. Good sentence parser, sketchy Mac interface. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (May 86)

Bridge 4.0 provides three other players and the cards for a game of ♦♦½ rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town. Plays slowly since it's written in BASIC. $29.95. Artworx Software, 150 N. Main St., Fairport, NY 14450. CP (Sep 86)

Bureaucracy is a paranoiac text adventure that dares you to move to a ♦♦♦½ new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Douglas Adams of *Hitchhiker's* fame. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Aug 87)

The Chessmaster 2000 is a masterful chess program that will appeal to ♦♦♦♦♦ both novices and master. You can view the board from 2- or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. $39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (Jul 87)

Dark Castle is an outstanding achievement in action games which ♦♦♦♦♦ integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Deja Vu: A Nightmare Comes True is a graphic adventure that breaks ♦♦♦♦♦ new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a collection ♦♦♦♦ of recipes from a nationwide sampling of restaurants. Users

enter number of diners and program scales recipes. $49.95. Rubicon, 2111 Dickson Dr., Austin, TX 78704. NCP (Jan 86)

Down Hill Racer is an action game with three skier personalities, four ♦♦♦♦ courses and four skill levels. There's something here for every player, no matter how bad or good. Full digitized sound (very nice!) $49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sep 87)

Enchanted Scepters is a surround sound graphic adventure game. It ♦♦♦♦ has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Ferrari Grand Prix is an exciting race car simulation game. Mastering it ♦♦♦♦ takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K+. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Jul 87)

Flight Simulator puts you at the controls of a small plane (prop or jet) ♦♦♦♦ and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. $49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Nov 86)

Fokker Triplane is about as near to flying as you can get seated in ♦♦♦♦ front of a computer. Very realistic simulation and excellent graphics. Well designed and implemented. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gato puts players in command of an American submarine in World War II. ♦♦♦♦½ This superb simulation game uses all of the Mac's graphic capa-

bilities to really make you feel that "you are there." $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. CP (Nov 85)

Grand Slam is an absorbing and realistic tennis simulation game. Prac-
✦✦✦✦ tice or play tournament against Mac-controlled players with different styles and abilities on four different surfaces. 512K or Mac Plus. $49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov 86)

HardBall is a baseball simulation game complete with umpire's calls and
✦✦✦✦ crowd sounds. Great graphics and a lot of fun for fans. $44.95. Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. CP (Feb 87)

Hollywood Hijinx substitutes a modern Hollywood estate for the famous
✦✦✦✦ Underground Empire, but otherwise represents a return to *Zork* gameplay and feel. There's even a maze to navigate. Simplistic, but good. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Jun 87)

Klondike 3.3 is a version of solitaire that uses video game-like scoring to
✦✦✦✦✦ create a superb, totally addictive game. Simple to play, nearly impossible to stop playing. Shareware: $10. Unison Software, 415 Clyde Ave., Mountain View, CA 94043. NCP (Dec 87)

Leather Goddesses of Phobos is another in the long line of witty and
✦✦✦✦✦ entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3D comic and a scratch 'n sniff card. It has three levels of play: tame, suggestive and lewd. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Feb 87)

Lode Runner is a 150-screen action-strategy challenge. Move around a
✦✦✦✦ grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

MacCourses adds four very challenging new courses to *MacGolf*.
✦✦✦½ Courses are swapped on the original *MacGolf* master disk two at a time. Nice add-on for a good game. Requires *MacGolf*. $34.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Apr 87)

MacGolf is a dynamic simulation of real golf. Players have a choice of
✦✦✦✦½ courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (May 86)

MacMan is a two-part package. The software portion is a decent *Pac-*
✦✦✦✦✦ *Man*-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvo Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug 87)

Mac Pro Football is a terrific sports simulation that gives you the chance
✦✦✦✦ to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. $49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar 87)

MacRacquetball uses digitized videos and sounds of professional play-
✦✦✦½ ers for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Oct 87)

Make Millions is a fascinating business simulation in which the player
✦✦✦✦✦ competes against the computer to take control of five companies, then run them profitably. Appeals to the closet capitalist in all of us. $49.95. Scarborough Systems/Mindscape, 3444 Dundee, Northbrook, IL 60062. CP

Maze Survival challenges players to destroy maze walls before roving
✦✦½ bugs squash themselves against it. Bugs lay eggs to spawn a new generation. Repetitive. $34.95. Olduvai Software, 7520A Red Road, South Miami, FL 33143. NCP (Aug 87)

MazeWars+ is an interactive, multiplayer game to be played on Apple-
✦✦✦✦ Talk or through a modem link. Chase opponents through a four level maze. Requires 512K+, AppleTalk or Hayes compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

MicEdGames is a collection of five educational games, MicAlphabetize,
✦½ MicTime, MicStates, MicMatch and MicSpell, supposedly for ages 5 to adult. Games are sometimes cute but generally poorly designed. Manual is poorly written. Some entertainment value. $19.95. MicEdWare, 4265 Midland Rd., Saginaw, MI 48603. NCP (Dec 87)

Mind Over Mac features five games. Entertainment for the whole family.
✦✦✦✦ Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

MoonMist is an introductory level text adventure game. This is a typical
✦✦✦ haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more then one play. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (May 87)

NewGammon is animated backgammon that will challenge even good
✦✦✦✦ players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional football.
✦✦✦½ Comes on two disks, one with program and *System,* the other statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

Ogre is a strategy tank game played on a hexagon grid. The ogre is an
✦✦✦✦ intelligent cybertank out to smash your command post. Customize your defense. Exceptionally good Mac interface. Has two-player option. $30. Origin Systems, 136 Harvey Rd., Building B, Londonderry, NH 03053. CP (Nov 87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of
✦✦✦✦½ controls, intelligent on-board computer with speech capabilities, real-time graphics and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Jul 86)

Orbquest is a fantasy role-playing adventure with better-than-average
✦✦✦½ puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

Patton vs. Rommel is a traditional-style strategic war game. It covers
✦✦✦✦ events in Normandy in 1944. While complex, it's well designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

The Pawn is an unusual British interactive adventure game with text and
✦✦✦½ graphics. The unique interface has some drawbacks, but *The Pawn* has humor, social satire, is entertaining and is challenging. $44.95. Requires 1M+. Firebird, PO Box 49, Ramsey, NJ 07446. CP (Mar 87)

Pinball Construction Set lets users create their own pinball games, as
✦✦✦✦ elaborate or as easy as desired. Uses *MacPaint* for backgrounds and has lifelike sounds (on 512K+ Macs). $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan 86)

Plundered Hearts brings gothic romance to interactive fiction in the
✦✦✦½ familiar Infocom mode of puzzles, mazes and riddles. You play a 17th century heroine dodging pirates to rescue her wrongly imprisoned father. Medium difficulty. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Jan 88)

Portal is an intriguing science fiction novel for kids that suffers from
✦✦✦ having a poor interface. Storyline: all of humanity is missing and you have to search through a data base for files that reveal the mystery. Nothing in the way of role-playing, and the Mac version is slow and buggy. $49.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 87)

Puppy Love is a combined game and teaching tool. As you teach your
✦✦✦✦½ puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. $29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar 87)

Quarterstaff (v. 1.2) is a fantasy adventure game of the typical "good
✦✦✦✦ vs. evil" variety. Ability to use characters in other adventures gives this game a lot of potential for development. Requires

MINIFINDERS

1M+. $49.95. Simulated Environment Systems, 800 South Pacific Coast Hwy., Redondo Beach, CA 90277. NCP (Mar 88)

Real Poker is five-card draw against five other players with Old West ★★★½ names, distinct personalities and playing styles, in a saloon setting. Dealing and play are very fast. Game evaluates your hand. $39.95. Henderson Associates, 980 Henderson Ave., Sunnyvale, CA 94086. CP

Seven Cities of Gold is an educational program masquerading as an ★★★ adventure game and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jun 87)

Shadowgate is an icon-based graphic adventure. You, as the seed of ★★★½ prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound and adventure. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Dec 87)

Shanghai challenges players to clear a board of all 144 tiles by matching ★★★★★ pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Nov 86)

Skyfox is a sophisticated 3D shoot-em-up. You're fighting tanks, planes ★★★ and enemy cities floating in the sky. Fast graphics, good sound, slick, on-board attack computer and many levels of difficulty will keep fans of this genre happy for hours. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Smash Hit Racquetball is an accurate and entertaining simulation of a ★★★★½ day on the courts. Digitized sound adds to the realism. Includes a hard disk install, unusual for a game. The low price makes this the perfect Mac gift. $19.95. Primera Software, 650 Cragmont Ave., Berkeley, CA 94707. CP (Dec 86)

Snake-Bar lets you guide a snake (or train or semi) through a maze ★★★★ picking up objects that feed and make your snake grow. Options include changing languages, editing the maze, and an X-rated game. $15. (shareware). Georges Malamound, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec 87)

Space Quest is a three-dimensional, animated adventure in which you ★★★★ play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Earnon System. Runs on any Mac. $49.95 Sierra On-Line, PO Box 485, Coarsegold, CA 93614. CP (Sep 87)

Stationfall is the sequel (finally) to Infocom's excellent *Planetfall* text ★★★★½ adventure. Reunited with Floyd and sent to pick up requisition forms, you must solve the empty space station problem. As straightforward as other Infocom games; more so than some. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Nov 87)

Strategic Conquest Plus challenges you to discover an unexplored ★★★★½ world and conquer it by manufacturing and deploying armies, ships and planes. A two-disk game that doesn't support an external drive. Requires 512K+. $59.95. PBI Software, 1111 Triton Dr., Foster City, CA 94404. CP (Feb 88)

Tass Times in Tone Town is a slightly off-the-wall graphic adventure in ★★★½ which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent puzzles, with a sense of humor. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jan 87)

The Toy Shop is a construction kit for building 20 different working model ★★★★ toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Trust & Betrayal: The Legacy of Siboot requires negotiating with 6 ★★★★½ artificial personalities in a struggle for power — not surprising considering that it comes from the maker of *Balance of Power*. Uses hieroglyphics to communicate in a fantasy world. Requires 512K+. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Mar 88)

Ultima III allows up to four characters to cooperate to explore the vast ★★★★½ wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely haunted ★★★★★ mansion. Since you access the parser by double-clicking, command choices are always visible — you don't waste time trying to figure out which words the program understands. It has animation and sound. $49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sep 86)

Winter Games lets up to eight players compete against each other in ★★★★ Olympic events including figure skating, bobsledding, biathlon and ski-jumping. Excellent animation, good graphics, good theme music. $39.95. Epyx, 600 Galveston Dr., PO Box 8020, Redwood City, CA 94063. CP (Mar 86)

Wizardry is an outstanding dungeon exploration adventure pitting a ★★★★★ party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. $59.95. Sir-Tech, Charlestown-Ogdensburg Mall, PO Box 245, Ogdensburg, NY 13669. CP

WordPlay is a word game with over 50 crossword puzzles for different ★★★★ levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what amounts ★★★★½ to its own programming language. The whole program (language including) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Xyphus is a role-playing game pitting four characters (fighters or wizards) ★★★★ against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. $39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

Your Personal Poet creates personalized greeting cards on the Mac. ★★★½ Comes complete with four greeting cards and matching envelopes. Does not run when connected to a LaserWriter. Requires 512K+. $29.95. Computer Poet Corp., PO Box 7707, Incline, NV 89450. NCP (Jun 87)

Zork II is where the adventure continues in the underground empire. A ★★★★½ wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

Zork III is the final chapter in the trilogy. Players come up against the ★★★ ultimate enemy — the Dungeonmaster himself. More closedended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

MUSIC

ConcertWare+ is an enhanced version of *ConcertWare*. Has different ★★★★ instruments and can use any four of a set of eight at any point in a piece. Can read and use *ConcertWare* and *MusicWorks* files. $69.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Nov 85)

ConcertWare+MIDI is a composition and transcription program that ★★★★ can record multiple notes from a MIDI keyboard. Easy to use if you read music. Handles 8 tracks of 8 voices each. Requires 1M+. Version 4.0. $149.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 87)

Jam Factory is a program for performing complex manipulations on MIDI ★★★ data in real time. Unique, entertaining and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface and MIDI synthesizer. $189. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

Listen is an educational tool for ear training. It has both a piano keyboard ★★★★ and a guitar fretboard for the student to input notes, and offers a wide range of exercises. $99. Resonate, PO Box 996, Menlo Park, CA 94026. (Jan 87)

M is a music composition and creation program that works with MIDI ★★★ data in real time. Unique, entertaining and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface and MIDI synthesizer. $219. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

AD INDEX

MINIFINDERS

Master Tracks Pro is a full-featured, second-generation MIDI sequenc-
♣♣♣½ er that adheres to the Mac interface very well. It's the first
program to have a graphic controller. Needs patch chasing for
professional use, but it's still a rock-solid program. $350. Pass-
port Designs, 625 Miramontes St., #103, Half Moon Bay, CA
94019. CP (Dec 87)

MIDIBasic is a simple, but highly useful routine for writing MIDI software.
♣♣♣♣ Good stuff. Sketchy documentation. Works with both *Microsoft*
and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Sys-
tems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Music Mouse is a music program in a genre all its own. Called an
♣♣♣♣♣ "intelligent instrument," *Music Mouse* gives you instant musi-
cal feedback as you move the mouse and type on the keyboard,
which controls tempo, vibrato, volume, etc. $59.95. OpCode
Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May 87)

Performer (v. 2.2) is the definitive MIDI sequencer, and is priced accord-
♣♣♣♣ ingly. Includes looping, SMPTE synching, 32 simultaneous Ins
and Outs, unlimited overdubbing and compatibility with Profes-
sional Composer for transcription. Requires MIDI interface and
512K+. $395. Mark of the Unicorn, 222 Third St., Cambridge,
MA 02142. CP (Jan 88)

Practica Musica uses an interactive, game and practice approach to
♣♣♣♣ teach music theory and ear training. Excellent training tool for
the serious music student, it is also fun for anyone who wants to
develop a trained ear for intervals, chords and melodies. Re-
quires 512K+. $125. ARS Nova Software, P.O. Box 40629,
Santa Barbara, CA 93140. NCP (Nov 87)

Professional Composer produces performance-quality sheet music us-
♣♣♣½ ing Adobe's Sonata font. Scores can be created from scratch or
imported from *Performer* (and can be exported to *Performer* for
MIDI playback). Requires 512K+. $495. Mark of the Unicorn,
222 Third St., Cambridge, MA 02142. CP (Jan 88)

Studio Session consists of two programs, an Editor and a Player, that
♣♣♣♣½ produce music with six voices of digitized sound. Excellent pro-
gram plus good manual make this a good buy. $89.95. Impulse,
6870 Shingle Creek Pkwy., Minneapolis, MN 55430. CP (Dec
86)

HARDWARE & ACCESSORIES

AST TurboScan is a 300 dpi scanner with sophisticated graphics soft-
♣♣♣♣ ware. Scans at resolutions from 72 to 300 dpi. *SuperScan* soft-
ware offers halftone, line art and mixed modes. "Virtual memory
processing" lets you scan images too large to fit in RAM. $1899.
AST Research, 2121 Alton Ave., Irvine, CA 92714. Requires
512K+. *SuperScan* software included. NCP (Nov 87)

CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard disk
♣♣♣♣♣ with a unity interleave and average access time of 18 msec.
Holds 140 M. Help, file transfer and tape backup commands
built in. *Hard Disk Partition* is a useful DA that comes with a 6 ft.
SCSI cable. $2995. CMS Enhancements, 1372 Valencia Ave.,
Tustin, CA 92680. (Jul 87)

DASCH is an external RAMdisk available in half, 1 and 2M sizes. Con-
♣♣♣ nects to a serial port. Speeds up operations 200 to 300%. Can
be used as a printer buffer. Works with all Macs. 512K, $395;
1M, $450; 2M, $545. Western Automation Laboratories, PO
Box 3438, Boulder, CO 80307. (Feb 87)

Data Frame 40XP is a very fast, very quiet 40-meg external SCSI hard
♣♣♣♣ drive. Comes with a good and complete set of utility software.
About as fast as a SCSI drive can be. Requires SCSI port,
512K+, new ROM. $1899. SuperMac Technology, 295 N. Ber-
nardo Ave., Mountain View, CA 94043.

DaynaFile hooks up to a SCSI drive to read MS-DOS disks in the Mac
♣♣♣♣ environment. Use Mac applications to manipulate data created
with an IBM PC. Comes in both 5-¼ and 3-½ inch formats. $595
for single floppy. Dayna Communications, 50 S. Main St., 5th
Floor, Salt Lake City, UT 84144. (Jan 88)

FX-20 is a good 20-meg external hard drive. Good utility software.
♣♣♣♣ Reliable and reasonably quiet. Sits next to Mac, has a large,
oddly shaped case. Requires SCSI port, 512K+, new ROM.
$1199. General Computer, 215 First St., Cambridge, MA
02142. (Feb 87)

Hard Disk 20SC is Apple's 20-meg SCSI hard disk. Reliable, fairly noisy
♣♣♣♣ unit. Good utility software, but no backup yet. Requires cable
and terminator ($80). Requires SCSI port, 512K+, new ROM.
$1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA
95014. (Feb 87)

Hewlett-Packard ColorPro Graphics Plotter is an eight-pen desk-
♣♣♣ top plotter that requires third party software to drive it. Fonts
are limited to an optional Graphics Enhancement Cartridge that
requires some BASIC programming. $1295. Hewlett-Packard,
16399 W. Bernardo Dr., San Diego, CA 92127. (Feb 88)

ImageMaker shoots 35mm color slides direct from the Mac. Supports
♣♣♣♣ most presentation software. Uses patterns to represent colors.
Not fully compatible with the Mac II. Requires 512K+. $4995.
MacDriver software, $149. Presentation Technologies, 743
North Pastoria Ave., Sunnyvale, CA 94086. (Feb 88)

IS/ONE tablet with **Penworks** software lets you use a corded or cord-
♣♣♣½ less pen or mouse and a high-res tablet for precise graphics
input. Minor bugs with some applications and DAs. Keystroke
macros can be launched from the tablet. Minimal documenta-
tion. Requires 1M+. $595 to $1145. Kurta, 4610 S. 35th St.,
Phoenix, AZ 85040. (Jan 88)

MacBottom 45 SCSI and Internal Modem has a modem that fits into
♣♣♣♣½ the top half of the 45-megabyte SCSI hard drive case. Comes
with *HFS Backup* and *Eureka*. Does not work with a Mac II.
$1795. Personal Computer Peripherals, 6204 Benjamin Rd.,
Tampa, FL 33634. (Oct 87)

MacBottom HD21 is a very low (about 2 inches high), external 20-meg
♣♣♣♣♣ hard drive. Fits under the Mac. Very quiet, very reliable. Good
utility software, including *HFS Backup*. Requires SCSI port,
512K+, new ROM. $1195. PCPC, 6204 Benjamin Rd., Tampa,
FL 33614. (Feb 87)

MacCharlie's components slip around the Mac and convert it
♣♣♣♣ into an IBM PC clone. Amazingly, it works well. The enlarged
keyboard has a few bugs but is a joy to use. $995. Dayna
Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec
85)

Macintizer is a graphics tablet and absolute positioning device that
♣♣♣♣ replaces the mouse. Various scales are possible. $599. GTCO
Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacNifty Sound Digitizer turns ordinary analog sound input into digital
♣♣♣♣½ waveforms which can then be manipulated using the *SoundCap*
software it comes with. Capable of truly stunning effects. Re-
quires 1M+. $129.95. Impulse, 6870 Shingle Creek Pkwy.,
Minneapolis, MN 55430.

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The board
♣♣♣♣ has 256 kilobit chips. User installable. Not compatible with exist-
ing big screens or internal hard disks, and can't be expanded
further. $399. Dove Computer, 1200 North 23rd St., Wilming-
ton, NC 28405. (Jun 87)

MacTablet is a stylus-driven graphics tablet. Users can easily sketch or
♣♣♣♣ trace art using this absolute-positioning device. Has a working
area the size of the Mac screen. Allows concurrent use of the
mouse. $495. Summagraphics Corp., 777 State St. Extension,
Fairfield, CT 06430. (Jan 86)

MacTilt/MacTilt SE is a Mac (and external drive) holder that allows a full
♣♣♣♣ range of swiveling and tilting. Very strong, this well made unit is
also very easy to use. $99.95. Ergotron, PO Box 17013, Minne-
apolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for input.
♣♣♣♣ Capable of extremely fine results and special effects. Easy to use
and well documented. $349.95. Koala, 269 Mt. Hermon Rd.,
Scotts Valley, CA 95066.

Magic Digitizer is a hardware digitizer that works with video cam-
♣♣♣♣ eras. With *LaserMagic* software you can generate 300 dpi im-
ages (in PostScript). Requires 512K+. Digitizer with *Magic* soft-
ware, $399.95; *LaserMagic* software, $49.95. New Image
Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP
(May 87)

Microtek MSF-300C is a 300-dpi flatbed scanner. Really fast when
♣♣♣½ used with optional MS-SCSI/C adapter. Comes with *VersaScan
Plus* software (NCP) to scan and manipulate image. Saves im-
ages in a number of formats including TIFF and *MacPaint*.

$1895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec 87)

Migent Pocket Modem is a 300/1200 baud portable modem about the ♣♣♣½ size of a 3 X 5 index card. Comes bundled with *MacTerm* 2.0, Borland's telecom DA. Manual is confusing, and tech support is minimal. $259. Migent, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov 87)

Mouse Mover is a mouse pad-type surface that snaps onto the bottom ♣♣♣♣½ of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311.

Moustrak is a fabric covered foam mousing pad. It will increase the ♣♣♣♣ efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NetModem is a 1200-baud modem that can be accessed by all users on ♣♣♣♣ an AppleTalk network. The modem's display lights and the dial tone are simulated on-screen. Requires 512K+. $599. Shiva, Suite 1200, 222 Third St., Cambridge, MA 02142-9919 (Feb 88)

NoLabelSystem is a plastic permanent labeling system in which users ♣♣♣♣ slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. $19.45. Weber & Sons, 3468 Hwy 9, Freehold, NJ 07728.

One Plus One is a user-installable memory upgrade for a Mac Plus. Adds ♣♣♣♣½ 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. $375. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug 87)

Personal Writer PW15 S is a tablet-based handwriting recognition ♣♣♣♣ system that also allows graphics and macros. Number of misread characters is too high for general word processing. Requires 1M+. $895. Personal Writer, 1801 Ave. of the Stars, Los Angeles, CA 90067. Software NCP (Mar 88)

PhoneNET is an AppleTalk-compatible network. Network can be up to ♣♣♣♣♣ 3000-ft in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec 86)

SuperRam 2 and SuperRam 4 are 2- and 4-megabyte RAM upgrades. ♣♣♣½ Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-meg memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-meg memory modules. Not compatible with most big screens. $499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct 87)

ThunderScan replaces the ribbon cartridge in an ImageWriter, which is ♣♣♣♣ required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. $249. Thunderware, 21 Orinda Way, Orinda, CA 94563.

TimeWand is a bar-code reader with a built-in time/date stamping clock. ♣♣♣♣ Can be used with *TimeWand Mangaer* software, a data base that's extensive though difficult to use. Poor docs, but good support. Requires 1M+. *TimeWand* 2K version, $198; *TimeWand Manager*, $489. Videx, 1105 NE Circle Blvd., Corvallis, OR 97330-4285. (Dec 87)

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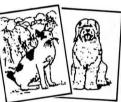
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category continued on next page.

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MacUser MARKETPLACE

By John C. Dvorak

Garbage of the Rich(?)and Famous (?)

I n past columns I've gone through my software pile, my letters pile and my memo pile. How about a new pile? Let's turn over the garbage can and see what I've discarded unopened, then open it and see what we have. OK?

Note: The sole purpose of an exercise such as this is to ridicule, humiliate and embarrass those firms who have accidentally been caught in Dvorak's garbage this time around. Anyone who follows my work knows that I don't do a calendar of events; I never write about promotions in a company or how a new warehouse was built. Furthermore, I'm not a daily newsman writing news and I don't have a new products column. So why do I get this stuff in the mail? Who knows?

On top is a press announcement from the Supra Corporation (Albany, Oregon) addressed to *The San Francisco Examiner* with my home address. Great. I can't tell you how many phone calls I get at home asking for some newsman at the *Ex* because of things like this. The press announcement is for a $1000, 10-megabyte floppy drive for use by the Atari, the Amiga and the Mac. It must be the Konica device I've seen before. There is no mention of how the technology works and the unit looks very hokey — like something from 1979 for use on a CP/M computer. Maybe I'll check it out, probably not. I'm sure from the looks of it the company will give me a review unit for 24 hours to "fully" evaluate.

Next in the can are a pile of flyers from Longs, Payless and a slug of stores. Who has time for these things?

Down in the pile is a large envelope from the Pacific Group. It looks to be machine addressed. I try to take one look at a mailer and determine if it was computer addressed. Many vendors of mailing lists on which I'm included have distinct mistakes they make and which I can easily spot. Those are automatic two-point can shots: slam dunk. I also feel for the telltale staple which indicates that an envelope contains a useless press release. Another two points.

This envelope from the Pacific Group looks like one of those Xerox-type labels made by the millions. Surprise! Inside I was shocked to find a personal note saying that I didn't get all the material they wanted to send me so here's more. This is the PR firm that pushes Action Technologies Coordinator software — an expensive but interesting software package that helps businesses coordinate messages, activities and schedules of many employees. I first heard about this thing some time back and wanted to look at it. I lost interest when it turned out that it cost a mint, was designed for large systems and

More disturbing is trying to figure out what this product really does. All the articles focus on the developer and how he was imprisoned in Chile and how he is now a free (and rich) American who went to est training.

had already been promoted to death. This package gave me two more long articles highlighting the system. If I wrote about it now, I'd look like the last geek writer in a long line.

More disturbing is trying to figure out what this product really does. All the articles focus on the developer and how he was imprisoned in Chile and how he is now a free (and rich) American who went to est training and is worshiped by his employees. Werner Erhardt owns 20 percent of the company. What's all this got to do with anything — and who cares?

So I reach down another layer and come up with an obvious press release from Chang Labs. It's addressed to John Dvorak, editor of *DVORAK*. You can tell that this company is right on top of things. Inside I find a press release with the headline: Chang Labs Adds Marketing and Retail Muscle. Whoa, here's something that my readers are fretting over. The text indicates that a couple of

guys were added to the board of directors and some character was made Area Sales director. I'm impressed.

Next in line is a letter from CAM Communications. Hmmm, this is a real letter, actually a document that tells me that the Quadram 386 card that I got a few days earlier has to be returned in 60 days or I'll have to pay for it. This is amusing since I don't recall requesting this board. In fact, it was a surprise to me when it arrived. Perhaps some small talk at a trade show resulted in a misunderstanding. Someone should have called first before sending the card or at least before sending a terse ex post facto evaluation agreement that ended up in the garbage because it looked just like a press release. Now I'm really curious about what else is in this garbage can.

Here's another press release from the Supra Corporation. It looks and feels just like the first. It happens all the time: duplicate press announcements. But wait. It's an announcement for the Supramodem 2400. A smallish 2400-baud modem that will sell for $179.95. Wow. I'll call them about this one.

Digging deeper I find a folder from Micro Engineering Solutions telling me all about a fascinating numerical control machining module (photographs included). Oh boy!

Here's a couple of lesser newsletters I don't read. Finally, a folder from *On Technology* announcing their existence and throwing in a picture of Mitch Kapor and a balding Peter Miller who is smirking for some unknown reason. One of the briefings contained in the folder claims the company is creating "Person Compatible Software." Yeah, right. Miller used to work for Kapor at Lotus Development where Miller developed *Jazz*. To me, this company sounds like a couple of old pals hanging out. An excuse to get out of the house and have a few drinks.

I could go on and on and on. You get the idea. I get about 500 pieces of mail a week and 450 pieces are of no value and in a process of elimination they are unceremoniously tossed out. I open apparent checks, bills, letters whose address is typed or obviously one of a kind and not on a mailing label. I open anything hand addressed. Some things fall through the cracks, but what else can I do? This is over a thousand pages of material a week that is useless. Surely I don't have time to read it all. Maybe an occasional look through this here garbage can will enlighten PR firms somewhat and get them to be more selective in their mailing. I'm not betting on it, though. ▧

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